BMJ Open

Women's Hospital Birth Experiences in Harar, Eastern Ethiopia: A Qualitative Study Using Roy's Adaptation Model

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-055250
Article Type:	Original research
Date Submitted by the Author:	07-Jul-2021
Complete List of Authors:	Tefera, Maleda; Haramaya University Assefa, Nega; Haramaya University Roba, Kedir; Haramaya University Gedefa, Letta; Haramaya University Brewis, Alex; Arizona State University Schuster, Roseanne; Arizona State University
Keywords:	Maternal medicine < OBSTETRICS, REPRODUCTIVE MEDICINE, Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Women's Hospital Birth Experiences in Harar, Eastern Ethiopia: A Qualitative Study Using Roy's Adaptation Model

Maleda Tefera[1], Nega Assefa [1], Kedir Teji Roba [1], Letta Gedefa [2]Alexandra Brewis[3] Roseanne C. Schuster[3]

Authors' Affiliation

[1]School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[2]School of Medicine, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[3]Center for Global Health, School of Human Evolution & Social Change, Arizona State University

Authors emailaddress

Maleda Tefera: maledaifa.21@gmail.com

Nega Assefa: negaassefa@yahoo.com

Kedir Teji; Roba: kedir.t.roba@gmail.com

Letta Gedefa: lettagedda@gmail.com

Alexandra Brewis[3]: alex.brewis@asu.edu

Roseanne C. Schuster[3]: roseanne.schuster@asu.edu

Corresponding Author Maleda Tefera: maledaifa.21@gmail.com School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia, Po. Box 235, Phone: +2519947792

Abstract

Objective: In addition to safe labor and childbirth, women's psychological and emotional needs should be met to make women feel safe, comfortable, and positive about their birthing experience. However, in many developing countries, little attention is given to the psychological aspects of childbirth. Prior studies in Ethiopia report that women avoid hospitals because of concerns over mistreatment. In this qualitative study, we consider women's hospital birth experiences at public hospitals in Harar, Eastern Ethiopia, using Roy's Adaptation Model (RAM) framework.

Methods: A phenomenological qualitative study design was used to explore women's birth experience in two public hospitals from March to April 2021. In-depth interviews were conducted with 38 women who gave birth to singleton, full-term babies through vaginal delivery or cesarean section (CS) with no pregnancy-related complications. Data collection and analysis followed the four components of RAM: physiological, self-concept, role and function, and interdependence. Interviews were analyzed using a deductive content analysis approach.

Results: CS worsened all aspects of adaptation during the birth process; even though none of the vaginal deliveries were accompanied by epidural pain relief. Reasons for lowered adaptation in CS women included surgical site pain and anesthesia, anxiety about the surgical procedure, concerns about future pregnancies, finances, inability to care for themselves and their babies, and a lack of family support.

Conclusions: Application of RAM principles to improve care will especially benefit Ethiopian women undergoing CS, providing an intervention framework that can gauge and correct interacting factors that make them vulnerable to negative birth experiences.

Article summary

- Cesarean section associated with negative birth experience
- The common factors were concern of future pregnancy, effect of anesthesia and lack of support
- Cesarean sections should be performed only when medically necessary, and
- The health professionals should provide more comfort and support to enhance positive birth experience.

Strengths and Limitations: of this study

- This theory-driven design using the four-mode of RAM provided a strong, conceptually defined framework for our analysis.
- However, some concepts from RAM (e.g., stimuli system, adaptation level, innate and acquired coping mechanisms) and other RAM tenets (e.g., cognator and regulator mechanisms) were not used because these variables would require quantitative assessment (e.g., Likert scale).

- However, by focusing on the four modes, we comprehensively explored the most important parts of women's birth experience.
- The in-depth interviews were conducted early in the post-partum period (1-2 days after birth) as most participants' homes were far from hospital and follow-up to discern if perceptions changed after women left hospital was not possible.
- This may have decreased recall bias in giving a very fresh memory of the birth experience, however the woman may not have been able to draw on her entire postpartum experience in her responses

Keywords: Cesarean section; Natural/vaginal delivery; Birth Experience; Ethiopia; midwifery; health care

Introduction

Giving birth is potentially (but not always) a joyful event in a woman's life,[1] ideally enhancing a woman's self-confidence and creating attachment to the newborn.[2]A positive birth experience is generally characterized by a sense of autonomy, choice, access to accurate information, and feeling respected.[3]This experience can be enhanced through positive relationships with health professionals[4]Fear, excessive pain, a perceived lack of support, discomfort, and unfavorable outcomes characterize a negative birth experience. [5, 6]The World Health Organization guidelines on intrapartum care released in 2018 recommended that, in addition to safe labor and childbirth, women's psychological and emotional needs should be met to make women feel safe, comfortable, and positive about the childbearing experience.[7]This is in part because postpartum maternal emotional wellbeing is influenced by birth experiences,[8] and poor postpartum mental illness symptoms – often measured as depression - negatively impact health-seeking (e.g., child immunizations,[9]) caregiver behaviors (e.g., breastfeeding[10]) and early childhood development (e.g., underweight and stunting.[11] In Ethiopia, our study site, postpartum mental distress is associated with infant illness,[12] and under nutrition.[13]

Over 70 percent of Ethiopian women give birth outside of the healthcare system (CSA Ethiopia 2016). There are many practical reasons (e.g., geographic, economic) that the vast majority of Ethiopian women given birth at home, despite this being often more risky for both the mother and the child as interventions to address serious birth complications are absent.[14]Studies considering why Ethiopian women avoid birth facilities show some disparate findings. Some large-scale surveys suggest poor service is an extremely minor factor in why women do not give birth in health facilities (e.g., 0.9%).[15] More localized reports tell a very different story, suggesting emotional reasons, particularly concerns over the way they will be treated by health care professionals.

In a recent qualitative focus-group based study in North West Ethiopia, a primary finding was that the critical reason many women avoided giving birth in hospitals was the perception of "disrespectful treatment".[16] Importantly – and part of the rationale for this study -- concerns around low quality of service and lack of respectful and supportive care were most often expressed by women who had previously given birth in hospitals (i.e., based on their own experiences). Other focus-group and interview based studies also similarly suggested mistreatment by staff is a factor. [17, 18] One study in Bahia Dar, based on surveys of 284 women also noted almost half of women reported "abuse" in their experiences of hospital births[19];another survey of 379 postpartum women in Amhara region,

74% reported "mistreatment", and 72% noted poor rapport with healthcare professionals in hospitals.[20]

In this context of Ethiopia, this qualitative study considers women's hospital birth experiences directly, with a particular focus on women's perceptions of processes around birth that deviate from what they expect as quality of care. The study was purposefully arranged through a care framework – Roy's Adaptation Model (RAM) – widely applied in the field of Nursing, and used here to organize, theorize, interpret, and suggest the means of improving Ethiopian women's hospital-based birth experiences (Figure 1). We selected this model because it is part of the suite of existing models for women-centered care, and thus it provides a means bridge examining women's experiences and considering how to improve nursing and other supportive care within health facilities. RAM allows us to identify where and how women's varied birth experiences fail to be "adaptive". "Adaptation" here refers to the successful interaction between a person (the new mother) and contextual stimuli (including hospital staff).

This study is also careful to distinguish between women's experiences as they relate to mode of delivery, specifically if by caesarian section (CS) or not. In the Bahia Dar survey study, respondents who gave birth by CS were four times more likely to report being disrespected than respondents who gave birth vaginally.[19] The exact reasons were not identified, although staff being overworked and over-extended was suggested. They concluded: "Provision of woman-centered care in compassionate and a respectful manner needs to be given adequate emphasis to attract more women to health facilities, and to make services more women friendly." Other qualitative studies conducted in sub-Saharan Africa have suggested that vaginal versus CS births can be fundamentally different (worse) hospital experiences for women. For example, on study in Uganda identified that vaginal birth enhanced a woman's status through its association with bravery, while a CS indicated weakness - and even witchcraft.[21]

A focus on CS experiences is warranted based on medical concerns as well: based on nationally-representative 2016 Demographic and Health Surveys data for Ethiopia, CS rates are increasing over time in Ethiopia and now averaging about 2% of births overall. For the urban capital of Addis Ababa, however, CS as mode of delivery reached 24.1% of all births in 2016.[22] Other studies of only hospital births suggest the rate is around 20% nationwide with 38.5% in Addis Ababa.[23]A meta-analysis suggested national rate of CS in Ethiopia is about 30%.[24] This exceeds the WHO expected level for optimum outcomes of around 10-15%, above which population-level improvements in maternal, neonatal, and infant mortality are not seen.[25]A recent study of births at our study hospitals

concluded that 22% of CS births developed immediate adverse neonatal outcomes, statistically higher than recorded for other areas in Ethiopia, but noted this may reflect in part the referral of difficult cases.[26]

Theoretical Framework for Birth Experience: Roy's Adaptation Model

RAM conceptualizes a woman's positive or negative birth experience as the outcome of process, involving care by others. In this model, good nursing must first address the focal stimuli of a medical event (here: the birth experience, whether vaginal or CS) but also take into account contextual stimuli. This includes factors such a socio-demographic knowledge, a relationship with a health provider, the hospital setting, newborn status, the number of caregivers, and the experience of health professionals, all of which influence the response to the focal stimulus directly to adaptation. Residual stimuli deals with women perceptual or attitude toward mode of birth. The regulator subsystem of Roy model, which deals with neurological, chemical, and hormonal responses was not used in this study. Perceptual/information processing, learning, judgment, and emotion are all part of the cognator (coping) subsystem. This was represented by the perception of the birth experience, which includes feelings or emotions about labor or perioperative procedures, delivery process, and intervention during delivery, and initial contact with the infant.[27]A negative birth experience is interpreted as "inadequate adaptation" in the Roy Adaptation Model.

Using the RAM, women's responses to stimuli are organized in four main modes of adaptation: physiological, self-concept role function, and interdependence. The physiological model encompasses the physical and chemical processes involved in human function. Fatigue, pain, surgical wound, need for sufficient healing period and decreased mobility considered as the physiological mode in this study. The self-concept-group identity mode is the emotional aspect, including feelings about oneself and the perception of others' reactions, whereas the role function mode deals with social integrity by concentrating on the performance of activities related to the various roles one passes during life. [28] For women who gave birth, the role function was to perform as the mother and a wife after exposure to the stimuli (mode of delivery). The interdependence model emphasizes satisfying relationships between the individual and significant others.[28] In our case, the interdependence mode included a partner or family support, interaction with health professionals, social support, and contact with the newborn, and the like.

In this study, we use qualitative data collected during interviews with 38 women following their hospital births to identify how each mode of RAM is experienced; the analysis uses those categories

as the interpretive framework. The analytic emphasis is on the distinctions of a focal stimuli (vaginal versus CS) and how that differently shaped women's understandings and meanings of their birth experience, using a phenomenological approach that seeks to create a comprehensive, accurate, clear, and articulate description and understanding of a specific human experience or experiential moment,[29](Figure 1).

Methods

Study population and sample

Our study was based in Harari region, Ethiopia, where the birth rate is increasing at an exponential rate, with 20.3 birth per 1000 in 2013.[30] The average number of children per woman is four. [31] Importantly, women undergoing vaginal delivery in this study were not offered pain relief, as is typical in most part of Ethiopia. The hospitals' protocol explicitly prohibits the administration of epidurals to laboring mothers. This is an important contextual distinction with other studies.[32, 33]

Interviews were conducted at public hospitals in the Harari Region of Eastern Ethiopia from March to April 2021. While there are three government hospitals and one private hospital in the study area, this study was restricted to two public hospitals: Hiwot Fana Specialized University Hospital (HFSUH) and Jugal General Hospital. HFSUH is a teaching center for many medical and health science students of different track. Approximately 4,782 deliveries occurred in the two hospitals in the past six months, of which1, 122 were CS delivery.Both hospitals have in place a policy that does allow for more than three CS to be performed on any woman.

During the study period approximately 797 women delivered babies in these two hospitals. Early COVID-19 restrictions were in place so that at HFSUH no family was allowed to attend birth. But at Jugal there were no restrictions on family attendance, so family was typically present. Eligibility criteria for study participants were women who give birth at these study hospitals, had no pregnancy-related complications, carried singleton baby to term, delivered vaginally or by CS, and spoke one of the two common local languages. Women with severe poor birth outcomes (e.g., stillbirth, preterm, or congenital malformation) or who were admitted for more than one week (again indicating severe birth or postpartum complications) were excluded.

To sample based on delivery type and potentially important difference in backgrounds, women were categorized into two groups based on the mode of delivery: vaginal delivery and CS delivery.

Stratified purposeful sampling was then employed to select participants, with the goal of illustrating variation in the experiences of these particular subgroups and facilitate comparisons. Stratified purposeful samples are samples within samples where each stratum is fairly homogenous. Stratified

purposeful sampling aims to capture major variations, even if a common core emerges from the analysis.[34] It is also helpful for investigating variations in the manifestation of a phenomenon as any key factor associated with the phenomenon changes. [35]

Recruitment was done at the maternity ward, and study information including voluntary participation, the study's aim, and methods were explained. Participants gave their written consent to join the study, with oversight provided by the University of Haramaya institutional review board.

Data collection

We interviewed 18 women who had vaginal deliveries and 20 women who had CS, exceeding the commonly accepted minimum number of twelve interviews needed to reach thematic saturation .[36] Interviews took place 1-2 days after the delivery. Interviews continued until sub-group saturation for both vaginal and CS delivery was reached. Saturation involves sampling until no new themes are obtained, so that further interviews would yield redundant information. [37]

The semi-structured interview guide was organized around RAM and included open-ended questions related to the four domains of RAM (physiological, self-concept, role and function, and interdependence,). The interview guide was pre-tested with five participants at another Haramaya hospital (not included in the study), and the interview guide was revised accordingly to elicit detailed responses relevant to the study objectives.

In-depth interviews using the semi-structured protocol were conducted by a trained facilitator accompanied by a dedicated note taker in Amharic or Afan Oromo, per the woman's preference. Emphasis was placed on confidentiality to create a comfortable environment for the participants to share more intimate details and provide a comprehensive descriptions of their experiences. Prompts such as "tell me more," "what happened next," and" please elaborate" were consistently used to elicit more detail. The note taker additionally recorded observations of the women's non-verbal reactions such as laughter, crying, eye contact, facial expressions, and signs of fear and discomfort, later aligned with the interview transcript.

Data processing and analysis

The audiotape records were transcribed verbatim in Afan Oromo or Amharic and checked the same day that the interviews were conducted by principal investigator. The transcripts were then translated into English by the interviewer and note taker. The translation was reviewed by principal investigator along with the contextual notes taken during the interview to ensure the context was accurately represented. Translated files were transferred to an open-code software in a plain text format where they were coded. The interviewer read the text of each interview in English language as a whole and

created an interpretive summary. These interpretive summaries were inserted into the final product, a personal experience narrative.

A content analysis approach using deductively derived codes was used to thematically analyze the transcripts. In a deductive approach, researchers review the data using existing theory and concepts, and these concepts are often incorporated into the initial codes as domains.[38, 39]The four RAM modes were thus identified as the main domains before accessing the data. These codes were systematically applied to the transcripts so that all statements relevant to the research question and RAM were tagged by two reviewers, and differences were resolved by discussion within the research team. The research team then reviewed all the excerpts tagged under each code and analyzed the narrative experiences of each groups of women who delivered vaginally or by CS according to RAM, substantiating with quotations.

Data quality control

The trustworthiness of data was be kept throughout the procedure, using four common criteria of credibility, dependability, conformability, and transferability.[40]To address *credibility*, the interviewer summarized the participants' responses after finishing the interview and then discussed with peers - the lead researcher and senior researchers –both to ensure alignment with the purposes, methods, and procedures and to achieve persistent observation, or "identify those characteristics and elements that are most relevant to the problem or issue under study, on which you will focus in detail".[40]In respect to *dependability and conformability*, the same protocol was applied and process was documented; the same interview guide was used for each participant, transcripts were matched with the audio records to confirm the consistency, and findings were supported with quotes from transcripts. Field notes and detailed notes on participants' non-verbal reactions during the interview were used to create a thick description that speaks to *transferability*.

Ethical Consideration

Ethical clearance was obtained from the Institutional Health Research Ethical Review Committee (Ref. No. IHRERC/107/2020) at the College of Health and Medical Science, Haramaya University. The purpose, procedure and duration, possible risks, and benefits of the study explain using the local language. Then individual informed, voluntary, written, and signed consent was obtained from each participant.

Results

The majority of the 38 women interviewed were in the age range of 15-24 (47.3%), married (100%), Muslim by religion (81.5%), of Oromo ethnicity (76.3%), non-literate (52.6%), and identified their

occupations as housewives (71%) (Table-1). The majority of women were multiparous (17%), 18.6% had a previous CS birth, and 13% had a history of stillbirth. The majority (92%) of the women were referred to the hospital by another health facility (private clinics, district hospitals, and health centers). (Table 1). Central to our study question, 47.4% delivered vaginally and 52.6% delivered by CS.

Table 1.Socio-demographic and obstetric characteristics participating mothers who delivered singleton, term infants

Variable		Vaginal delivery N=18(%)	Cesarean section N=20(%)	Total delivery N=38
Age in years	15-24	10(55.5%)	8(40%)	18(47.4%)
	25-34	7(38.9%)	5(25%)	12(31.6%)
	35-46	1(5.6%)	7(35%)	8(21%)
Residency	Urban	10(55.6%)	5(25%)	15(39.5%)
	Rural	8(44.4%)	17(85%)	23(60.5%)
Marital status	Married	18(100%)	20(100%)	38(100%)
Ethnicity	Oromo	13(72.2%)	16(80%)	29(76.3%)
	Amhara	4(22.2%)	3(15%)	7(18.4%)
	Gurage	1(5.5%)	1(5%)	2(5.3%)
Working outside the home	Employed	4(22 %)	7(35%)	11(29%)
	Housewife	14(77.8%)	13(65%)	27(71%)
Religion	Muslim	17(94.4%)	14(70 %)	31(81.6%)
	Orthodox	1(5.6%)	4(20%)	5(13 .2%)
	Protestant	0(0%)	2(10%)	2(5.3%)
Educational level	Non-literate	13(72.2%)	7(35%)	20(52.6%)
	Literate	5(27.8%)	13(65%)	18(47.4%)
Parity	Nonporous	6(33.3%)	5(25%)	11(29%)
	Multiparous	12(66.7%)	15(75%)	27(71%)
History of previous CS	Yes	2(1.1%)	5(25%)	7(18.4%)
	No	16(88.9%)	15(75%)	31(81.6%)
Previous stillbirth	Yes	1(5.6%)	4(20%)	5(13.2%)
	No	17(94.4%)	16(80%)	33(86.8%)
Previous neonatal death	Yes	2(11.1%)	0(0%)	2(5.3%)
	No	16(88.9%)	20(100 %)	36(94.7%)
Having referral	Yes	17(94.4%)	18(90%)	35(92.1%)
	No	1(5.6%)	2(10%)	3(7.9%)

The key category in this analysis was RAM adaptation modes. Women's adaptation behavior differed depending on their characteristics such as parity, educational level, and residency,
It is also influenced by the mode of delivery. The four adaptive types of RAM are used to categorize the participants' behaviors.

Physiological mode

The physiological mode of the RAM, as noted, encompasses the physical and chemical processes involved in human function. During and following the birth process fatigue, pain, surgical wound, and decreased mobility the dominant physiological problems. Adapting to physiologic mode was reported as more difficult for women who gave birth via emergency CS because they experienced labor pain as well as pain from the surgical procedure. These women described the labor pain as uncontrollable and mentioned the complexities of the CS procedure. It's aftereffects include loss of body control, numbness, prolonged lying on the back, and feeling chilled, all of which have been reported as negative experiences. Besides, the pain around the surgical site is intense and intolerant without anti-pain.

A 25 year –old woman,*"...I was referred from the health center [to the hospital] after six hours of labor. The labor pain was difficult to describe; the contractions were frequent with pushing down pain, but the baby did not engage. The doctor decided to perform a cesarean section. The feeling in the recovery room after the operation was horrible. I could not turn to the side. I was in excruciating pain all over my body, and to feed the breast for the baby was very difficult."*

Some women prefer elective cesarean section, and they had better adaptation to physiologic mode than those who underwent emergency CS. The reasons for choosing elective CS were fear of labor pain, the previous bad experience of vaginal birth, and having previous CS.

A 37-year-old female "*My previous birth experience was not positive, and I waited for a normal birth for more than 16 hours before giving birth through CS. Not to repeat this bad experience, I would prefer elective CS for my current pregnancy. When I compared this birth to the previous one, I felt better because the pain is only from the surgical site, and I did not experience labor pain."*

Most women in the urban who had previously had CS preferred elective CS and were unwilling to try a vaginal birth. Even those who agreed to try vaginal birth after CS lacked the patience to wait for labor to progress before deciding to give birth via CS

A 30year –old woman.*".....I had previous CS, and the midwife counseled me to have a vaginal birth. My family also advised me to try a vaginal birth. I agreed to give birth vaginally, but the pain was too much for me; I couldn't stand the pain and was exhausted, so I requested CS."*

However, the women from the rural area preferred the natural birth mode; even they refuse CS to accurate indication

A 26year –old woman *".....Baby was buttock down [instead of head down], and they advised me to give birth via cesarean section, which I refused. After a lengthy discussion with my family, we reached an agreement, but I am still hesitant to give birth via CS because it has significant effects. "*

Those women had poor adaptation to physiologic mode. Staying for more days at the hospital, surgical wound, and activity intolerance were the main reasons for the negative birth experience

A 28 year –old woman *"I was very active in doing things during my previous delivery because I had a normal delivery, but now I had CS. I can't move, can't even go to the toilet, and can't breastfeed or care for my baby because of surgical wound pain.*

According to women who give birth naturally, labor pain is incomparable, taking their breath away and making them unable to speak. However, the pain is gone after delivery and is immediately forgotten after birth. Following the birth, there is some contraction pain, and the body becomes exhausted.

A 24year –old woman *"The labor began at night with back pain, and by the middle of the night, it had become severe and uncontrollable. We arrived at the hospital around 2 a.m., but I gave birth around 10 a.m. Oh, the pain was difficult to describe, but I had forgotten everything as soon as I gave birth. I couldn't even speak after giving birth because I was so exhausted."*

This experience varies depending on the characteristics of the women; women from rural areas accept labor pain as a necessary part of motherhood and control the pain with patience. These women agreed on the severity of the pain, but it is a natural event awarded by Allah. Every woman should go through this agony; giving birth through elective CS is an attempt to influence Allah's work.

Pain and exhaustion in primiparous women, on the other hand, are unexpected and stressful. The first time women explained that labor pain is worse than anything they could imagine, it lasted a long time. During the actual delivery, the body becomes numb and exhausted, making pushing the fetus extremely difficult.

A 22year –old woman *"It's difficult to describe the pain; I thought I was going to die. When the contraction came, I squeezed the hand of the medical student who was following me, and he put my hand on the bed and told me to handle the edge of the bed. However, when the contraction came again, I began to squeeze his hand because I couldn't control the pain. Finally, my body became exhausted during the actual birth, and I could not push the baby. I requested an operation, but they refused .I gave birth with their assistance."*

Self-concept mode

Women in this study did not feel sure and in control. Almost all women, particularly those who gave birth at HFSUH, stated that they were most exhausted by bombarded with frequent and repetitive questions from various medical and midwifery students.

The women also claimed that procedures like vaginal examinations and catheter insertion were performed in front of many students and staff members without their consent. As a result, the body becomes constricted, making it challenging to complete the procedure quickly.

"Students kept approaching me with the same question. This was tedious because I was in pain and even cried when I was overwhelmed. Furthermore, the examination was performed in front of many students, which was extremely humiliating. If they maintain privacy, the body can relax, and they can do anything they want."

Adaptive self-concept also depends on having support, changing the plan in a mode of delivery, and newborn health. [*28*year old, multiparous mother, cesarean section]

"I assumed I'd be able to give birth naturally. However, the health professional informed me that I would be unable to give birth naturally due to two previous cesarean sections. This was concerning news that raised my blood pressure." [*26*year old, multiparous mother, cesarean section]

cry. "*The labor started at the workplace (at the market), I called my neighbor, and he took me to the hospital. He told them to support me because I have no family. My husband is looking for work in Adama, I have two children, 12 and 4 years old. The delivery time is not long, but I cannot push the baby. I gave birth with the help of the device. The device traumatized the baby's head, and he was sent to the neonatal intensive care unit (NICU).I'm scared and concerned about my baby's health. My two children also require my assistance, but I am here because of the baby. I'm anxious and depressed as a result of all of this."* [34year old, multiparous mother, vaginal delivery]

Women from rural areas fared better in terms of adaptation than urban and educated women. They readily accept the condition, with little or no help from family or health care providers. The multiparous women who came from the rural areas and gave birth through instrumental delivery explained that one should accept whatever life offers because Allah's will controls everything.

"*I finished the labor at home. As soon as I arrived at the hospital, they took me to the delivery bed, the baby was in trouble, and they assisted me with the device. However, after the baby was born, he did not cry well and was injured on his head, transferring him to the NICU. But I am not stressed because this is Allah's job; if he belongs to me, he will cure if Allah creates for him, I will get him at heaven."* [22 year old, multiparous mother, vaginal delivery]

The perception of childbirth, hospital environment, and relationship with the health care provider all influenced primiparous women's adaptation to self-concept behavior.

A 28 year –old woman *"I was concerned because my friend's birth experience had been traumatic; she had labored for more than 20 hours, and there were rumors about this hospital such as, if you go here, you will be on the doll for students, so I was afraid when I was referred here, but the treatment they provided me disproved the rumors.".* [28 year old, first time mother, vaginal delivery]

The women who gave birth naturally had a better self-concept than those who had an emergency cesarean section. They explained that childbirth pain is excruciating, but tolerating it helps to build own confidence and motherhood satisfaction.

"I labored for 15 hours, the contraction pain is severe especially nearest birth, but it gone immediately after birth, I'm healthy, and I said yes, I did it." 'I'm glad I made it through the difficult period." [20 year old, multiparous mother, vaginal delivery]

Women who gave birth by emergency CS, on the other hand, stated that in most cases, CS is indicated when the baby or the mother is in danger, but surgical procedure introduces additional risks and causes a great deal of anger and stress.

"...after 4-hour labor, the doctor advised me to have my baby delivered via cesarean section because [the baby] was in distress; this was an unwelcome new experience for me. Furthermore, I became anxious and even cried and asked them to tell my husband and family because I feared I would die. So before the operation, I decided to talk with my family and entrust my children to my family members [for care if do not survive the procedure]."[35 year old, multiparous mother, cesarean section]

Even after giving birth, several women find the environment uncomfortable, and remaining in the hospital for several days does not provide comfort.

A 22year –old woman *"I don't want to stay here; I want to go home and celebrate my birth with my family because you don't have autonomy. You don't get what you want, and you don't have privacy here. Furthermore, my family suffers alongside me because there is no place for relatives to rest at night here; they slept outside on the ground, so staying here was not comfortable at all."* [22 year old, multiparous mother, cesarean section]

Most Muslim women, in particular, were dissatisfied with having their children delivered via cesarean section. Because they believed that having CS in the current pregnancy would affect future pregnancies and limit their ability to have multiple children, resulting in divorce or their husband bringing in a second wife into the household. As a result, most Muslim women refused CS delivery even when indicated

"*....refused CS and told them I'd rather die than give birth through surgery because if I gave birth to my first child via CS, the next would also be via CS, and I can't have more than two children via this mode, so my husband looked for another wife for getting more children.*" [18 year old, first time mother, vaginal delivery]

Those who gave birth through CS after receiving reassurance remained concerned about the future. Because their partners and families shared the same concerns, these women were not emotionally supported or reassured by their partners, families, or society. This limitation on number of children due to CS delivery was the primary cause of marital dissatisfaction, loss of self-confidence, and lack of trust in the health system.

"...*When they told me that I could only be delivered through CS and that this would be my last CS because I had two previous CS. I was saddened, and my blood pressure rose because my husband and his family needed many children, which also encouraged the community and religious leaders..."* [34 year old, multiparous mother, cesarean section]

Since the mode of delivery was arranged, the women who gave birth by elective CS had a positive self-concept, which they convinced themselves of during antenatal care visits.

"During my antenatal care visit, I decided on my mode of delivery, and when the time came to deliver, I was not afraid at all." It is common to feel some frustration when entering the operating room, but this dissipates once you communicate with the teams." [28 year old, multiparous mother, cesarean section]

Role function mode

Role function mode deals with social integrity by concentrating on activities related to the various roles one passes during life.[28] For women who gave birth, the most central role function was to perform as the mother and a wife after delivery. The women delivered via CS report that breastfeeding and caring for the baby is difficult due to pressure from the incision site and associated uterine pains. On top of this, first-time women face more significant difficulties because of their lack of experience.

"..... *I tried to breastfeed when the baby was crying but couldn't, due to the pain at the incision site and a lack of knowledge about treating the baby. Furthermore, the baby couldn't hold to the breast. She tried to hold but couldn't. At the time, she was angry and crying a lot, which made me stressed, so she started bottle-feeding until I recovered from the pain."*[24 year old, first time mother, cesarean section]

In addition, the length of hospital stays influenced adaption in relation to role and function mode for women who gave birth through emergency CS, especially those from rural areas. They clarified that staying in hospital for several days is not suitable because they have children who need their care at home and are concerned about financial implications of a prolonged hospital stay. Therefore many women are not comfortable staying in the hospital for a long time.

A 35-year woman"... *Some women with CS were discharged after three days, but I have been here for five days because I am in treatment. I prefer to return home after delivery, but I had to stay here for five days due to this CS, and I have four children at home who require my attention, and we have spent all of the money we have, so we want to go home."*[35 year old, multiparous mother, cesarean section]

Adaptive behavior to role and function mode was observed in women who gave birth naturally, and they reported being able to transition into caring for the baby. After delivery, the health provider assisted in helping position the mother and baby for feeding, so that once the baby began to suckle at the breast, breastfeeding was successful. Some first-time mothers clarified that while meeting their

child for the first time was a wonderful experience, feeding and caring for their infant's extensive needs could be challenging for a while.

Interdependence mode

The interdependence mode emphasizes satisfying relationships between the individual and significant others.[28] In our case, interdependence mode included partner or family support, interaction with health professionals, social support, and contact with the newborn.

Due to COVID 19 restrictions, all women who gave birth at Hiwot Fana hospital were distressed that that access to the labor and maternity ward was limited, and so they received no direct assistance from their families following delivery. Particularly for women who gave birth through CS, this meant women were unable to access physical and emotional support from family.

A 32-year woman "*...I had a difficult time after giving birth; caring for the baby is difficult due to pain in the incision site; I am unable to move, sit, or turn to the side .family support is critical in this situation, but I didn't get this chance."*[32 year old, multiparous mother, cesarean section]

Most women who gave birth at Hiwot Fana hospital appreciated the skill and kindness of their health professionals. However, the number of health care workers was limited, especially at night, so women were unable to receive this critical help from the hospital staff, further complicating their experience. This was when family support was most needed, but not available.

A 23 year –old woman, *"No one is allowed to access the delivery and postnatal wards because of COVID-19. It is more challenging to breastfeed or care for the infant, so having someone in the family relieves stress." [23*year old, first time mother, cesarean section]

The women explained that even getting food and clothes was very difficult, mainly those who had no mobile phone to coordinate:

,"*...It was not easy to locate health professionals when you needed their services. To get assistance for a problem, you must wait until they return. You wouldn't be able to get meals on time if you don't have a mobile phone, and you wouldn't be able to change clothes. The phone is your only means of communication with your relatives*". [A 28year old, multipara, cesarean section]

The women from Jugal Hospital, on the other hand, had family support. However, some raised the issue of safety, stating that more than three family members could enter the ward for one woman without COVID-19 protection, increasing the risk of infection, and they recommended that the hospital limit the attendant with maximum protection.

"...We are at high risk for COVID-19, but hospital administration is reluctant against COVID prevention. The visitors and health providers did not use COVID-19 protection, the hospital must focus on problem prevention. Imagine

if a mother is infected, how many people can be affected at once. As you can see, there are more than eight beds in one room and more than three people on each bed so that you can estimate the scope of the problem."[25 year old, first time mother, vaginal delivery]

Some women from both hospitals explained that refusing advice from the health professionals resulted in verbal and physical abuse:

"I had been in labor for 20 hours, and the cervix did not open as expected. The doctors advised me to give birth via cesarean section, but I refused, and the health professionals who followed me became irritated and aggressive .I am still resisting the operation; he tried to take me by force, but I screamed and cried, then he hit me with a card and left the room. Finally, other health professionals came to see me, and he confirmed that the baby's head is coming out, so I gave birth vaginally with stitches".[18 year old, first time mother, vaginal delivery*]*

Furthermore, some women stated that lack of adequate and timely procedures beginning with admission to postpartum care resulted in poor quality of care for them and their babies, ranging from negligence to severe complications:

*"..... I went to the hospital at night, and the midwife told me to go home because the cervix was not open, then I came back the following day. The midwife told me the same thing again, but this time I did not return home because I had a baby on the way, and my family begged her to help me, but she insulted them. Finally, the baby's head emerged, and other medical personnel escorted me to the delivery bed with dignity". [28*year old, multipara, vaginal delivery]

Some women also explained that the health professionals only care for the woman until she gives birth, so that the critical care given postpartum is neglected:

"*I gave birth through vaginal delivery at night, but there was still no health professional who visited us, even though I was in severe pain after birth. My partner went to the delivery unit and told them to check me, but they didn't come. Finally, I was fed up with waiting for them, felt angry, and tried to leave the hospital without permission, and on my way, I felt dizzy and fell, and I went back to my bed with the help of others." [34*year old, multipara, vaginal delivery]

Discussion

Roy's Adaptation Model, as applied in our analysis of Ethiopian women's birth experiences in two hospitals, has four components: physiological, self-concept, role and function, and interdependence mode. Using these to organize our analysis, we find women who give birth vaginally reported better physiological adaptation. In contrast, women who gave birth via CS struggled with surgical site pain and after-effects of anesthesia. Similarly, women who had CS had less adaptation to self-concept, role and function, and interdependence related to anxiety about the surgical procedure, concern about

limitations on future pregnancies, inability to care for themselves and their babies, and a lack of family and social support. These were associated with more negative birth experiences, as identified by women through interviews.

Our findings show that the mode of delivery, health professional and family support, newborn health status, previous experience, and changing of a plane in delivery all impact women's adaptive behavior. The labor pain was described as a complex phenomenon that resulted in a sense of confidence and accomplishment for women who delivered vaginally.

One particular feature of this study is that vaginal delivery is – by hospital policy -- conducted without epidural. However, most women agreed that labor pain is a "normal" part of the childbirth process, and those who gave birth vaginally thus adapted well to. This finding is consistent with other studies that have found a link between the social constructions of vaginal delivery as a signal of positive motherhood for women, and so define it as a normal, natural, and preferred mode of delivery. Vaginal delivery appears to be a symbol of womanhood. [41-43]In contrast, the emergency CS was associated with negative feelings, as those women experienced severe labor pain and pain from surgical inclusion after birth. The women had ineffective adaptation to physiologic mode, which resulted in a negative birth experience; this finding was consistent other studies.[42, 44]

Fear of surgery, a lack of family support, and concern about future pregnancies were the primary causes of infective adaptation to self-concept. Almost all Muslim participants' mistrusted CS delivery, particular because it was perceived to inhibit having more children because of hospital policy does not allow any woman to have more than three CS deliveries. Other African studies have shown similar results: CS delivery is associated with stress and anxiety due to fear of pain and death, but also religious and socio cultural concerns related to its long and short-term repercussions. [45-47]

The majority of study participants failed to receive what they perceived as family support, which using RAM was the primary cause of women's ineffective adaptive behavior to self-concept, resulting in a negative birth experience. This finding is consistent with other studies that found that women who received adequate healthcare provider and spouse support had a positive childbirth experience.[48] Adaptive self-concept mode was also influenced by such nursing actions as ensuring privacy and explaining the procedure before the performance. Most women stated that examinations were done in front of many students, and without adequate warning, and so were humiliating. This has been described in other studies as a factor in negative birth experiences.[41]

In relation to role and function mode, giving birth via vaginal delivery increased the women's self-efficacy and enhanced their sense of motherhood. Women who delivered via CS, on the other hand, faced numerous challenges due to pain at the surgical site. They were unable to sit, move, or easily breastfeed. Those without additional family support struggled most. Furthermore, the longer admission times related to CS were distressing in itself because this cost more and meant women were further burdened by struggling to pay; this finding that the economics of CS are part of the emotional distress it causes is congruent with other studies.[49-51]

This study revealed that having support from family and healthcare providers played a significant role in having a positive birth experience. Ineffective interdependence mode was observed more in women who get birth via CS, particularly those who gave birth at Hiwot Fana hospital, where family entry was more restricted. This finding is congruent with other studies Sub-Saharan countries, which revealed that the participants valued a birthing environment that allows for family support. However, in most African hospitals, the family is never allowed in, so the women chose to give birth at home. [42, 49-51]

Some participants were centrally dissatisfied with healthcare professionals; they reported being were verbally and physically abused, resulting in a negative birth experience. Unfortunately this finding is not unique to our study and has been reported elsewhere. [52]For example, a study in Uganda reported that physical and psychosocial support provided comfort, consolation, and encouragement to the mothers, while improper care, poor communication, and compromised privacy contributed to the mothers' negative childbirth experiences.[21] Furthermore, the indication that caring for women postpartum is less important now that she is not carrying her child is distressing, and aligns with calls for quality, respectful, and dignified care for women.[53]

Conclusion: Clinical Implications for Nursing and Beyond

A recent meta-synthesis of ethnographic studies of women's fears around childbirth by Wigert and colleagues (2019)[54]included studies from Australia, Iran, Norway, Sweden and the US. Part of the bitterness and regret after imperfect birth experiences was directed toward birth attendants such as nurses and midwives; by the same token, women's positive experiences based in empathy were also expressed as part of the care from attendants. During labor and delivery, women may be helped by providing proper care, timely information, warmth, encouragement, and reassurance.[55]

Nursing care encourages such a holistic approach to patient care, as described in the Roy Adaptation Model. Here we identify that, for Ethiopian women interviewed for this study, CS in particular worsened all aspects of adaptation during the birth process as defined by the RAM. Application of

RAM principles to Nursing will most especially benefit Ethiopian women undergoing CS, providing a framework to consider all the interacting factors that make them vulnerable to negative experiences. The use of such models already recognizable to nurses and other health care professionals, bolstered by empirical evidence such as this study that indicate how and why care must be improved, will make the case for change easier.

Acknowledgments

We acknowledge Haramaya University, college of health and medical sciences, for funding. Our special gratitude goes to data collectors and health professionals who work at the obstetric ward for their unreserved commitment and support

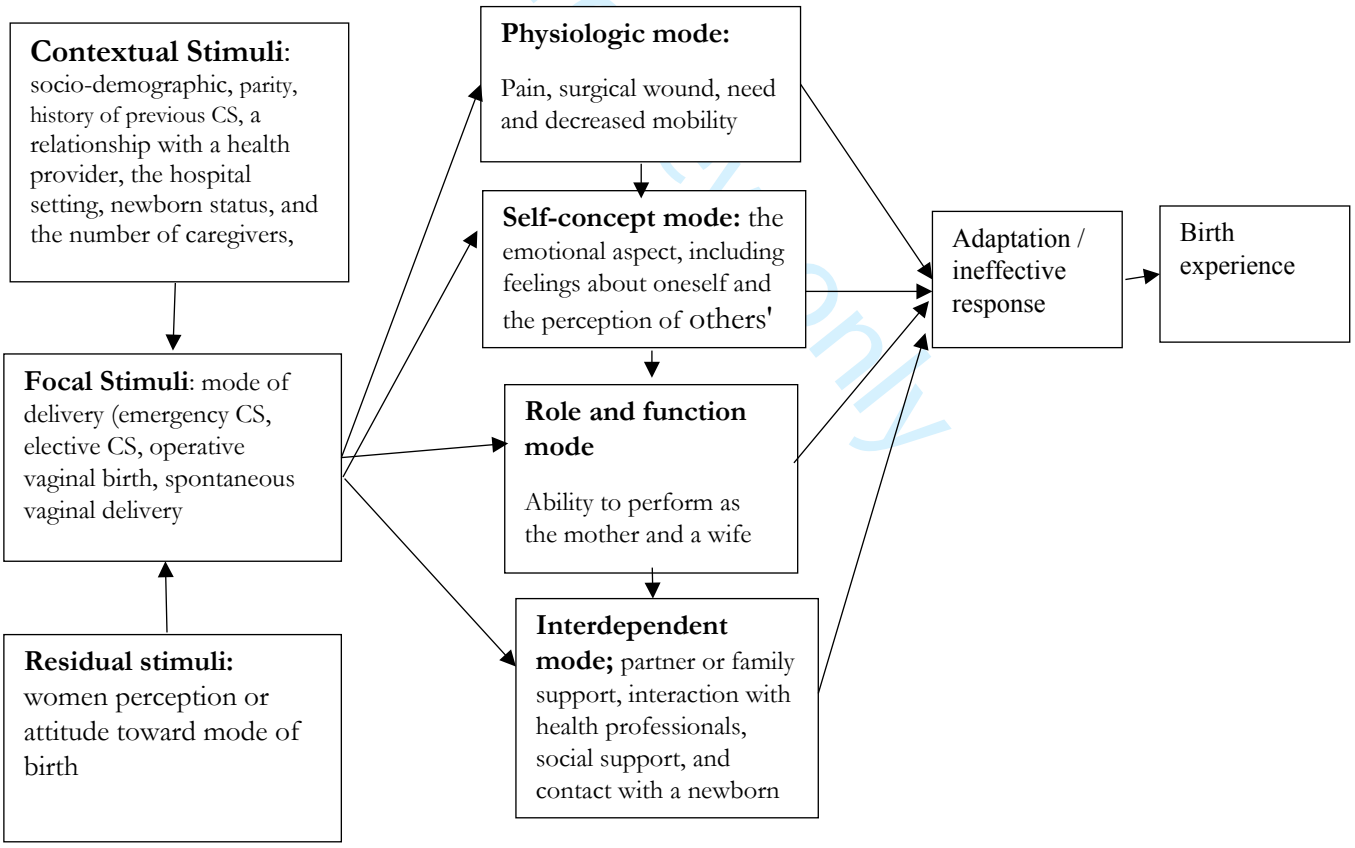

Figure 1; Stimuli associated with women birth experience based on Roy's Adaptation Model (RAM)[56].

References

1. Downe S, Finlayson K, Oladapo O et al. What matters to women during childbirth: a systematic qualitative review. *PloS one* 2018; **13**: e0194906.
2. Freund A. Expectations and experiences of first-time mothers; 2008.
3. Karlström A, Nystedt A, Hildingsson I. The meaning of a very positive birth experience: focus groups discussions with women. *BMC Pregnancy and Childbirth* 2015; **15**: 251.
4. Dahlberg U, Aune I. The woman's birth experience—The effect of interpersonal relationships and continuity of care. *Midwifery* 2013; **29**: 407-15.
5. Smarandache A, Kim THM, Bohr Y, Tamim H. Predictors of a negative labour and birth experience based on a national survey of Canadian women. *BMC Pregnancy and Childbirth* 2016; **16**: 114.
6. Waldenström U, Hildingsson I, Rubertsson C, Rådestad I. A Negative Birth Experience: Prevalence and Risk Factors in a National Sample 2004.
7. WHO. WHO recommendations:: intrapartum care for a positive childbirth experience. Sexual and reproductive health. 2018.
8. McLeish J, Redshaw M. Mothers' accounts of the impact on emotional wellbeing of organised peer support in pregnancy and early parenthood: a qualitative study. *BMC Pregnancy and Childbirth* 2017; **17**: 28.
9. Matare CR, Mbuya MN, Dickin KL et al. Maternal capabilities are associated with child caregiving behaviors among women in rural Zimbabwe. *The Journal of nutrition* 2021; **151**: 685-94.
10. Assarian F, Moravveji A, Ghaffarian H et al. The association of postpartum maternal mental health with breastfeeding status of mothers: a case-control study. *Iranian Red Crescent Medical Journal* 2014; **16**.

11. Surkan PJ, Kennedy CE, Hurley KM, Black MM. Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis. *Bulletin of the World Health Organization* 2011; **89**: 607-15.
12. Ross J, Hanlon C, Medhin G et al. Perinatal mental distress and infant morbidity in Ethiopia: a cohort study. *Archives of Disease in Childhood-Fetal and Neonatal Edition* 2011; **96**: F59-F64.
13. Anato A, Baye K, Tafese Z, Stoecker BJ. Maternal depression is associated with child undernutrition: A cross-sectional study in Ethiopia. *Maternal & child nutrition* 2020; **16**: e12934.
14. Geller SE, Koch AR, Garland CE et al. A global view of severe maternal morbidity: moving beyond maternal mortality. *Reprod Health* 2018; **15**: 31-43.
15. Yaya S, Bishwajit G, Uthman OA, Amouzou A. Why some women fail to give birth at health facilities: a comparative study between Ethiopia and Nigeria. *PloS one* 2018; **13**: e0196896.
16. Shiferaw BB, Modiba LM. Why do women not use skilled birth attendance service? An explorative qualitative study in north West Ethiopia. *BMC Pregnancy and Childbirth* 2020; **20**: 633.
17. Gurara M, Muyldermans K, Jacquemyn Y et al. Traditional birth attendants' roles and homebirth choices in Ethiopia: A qualitative study. *Women and Birth* 2020; **33**: e464-e72.
18. Ababor S, Birhanu Z, Defar A et al. Socio-cultural Beliefs and Practices Influencing Institutional Delivery Service Utilization in Three Communities of Ethiopia: A Qualitative Study. *Ethiopian journal of health sciences* 2019; **29**.
19. Wassihun B, Zeleke S. Compassionate and respectful maternity care during facility based child birth and women's intent to use maternity service in Bahir Dar, Ethiopia. *BMC pregnancy and childbirth* 2018; **18**: 1-9.
20. Sheferaw ED, Kim Y-M, Van Den Akker T, Stekelenburg J. Mistreatment of women in public health facilities of Ethiopia. *Reprod Health* 2019; **16**: 1-10.
21. Namujju J, Muhindo R, Mselle LT et al. Childbirth experiences and their derived meaning: a qualitative study among postnatal mothers in Mbale regional referral hospital, Uganda. *Reprod Health* 2018; **15**: 183.
22. Yisma E, Smithers LG, Lynch JW, Mol BW. Cesarean section in Ethiopia: prevalence and sociodemographic characteristics. *The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstet* 2019; **32**: 1130-5.
23. Geleto A, Chojenta C, Taddele T, Loxton D. Association between maternal mortality and caesarean section in Ethiopia: a national cross-sectional study. *BMC Pregnancy and Childbirth* 2020; **20**: 588.
24. Gedefaw G, Demis A, Alemnew B et al. Prevalence, indications, and outcomes of caesarean section deliveries in Ethiopia: a systematic review and meta-analysis. *Patient Safety in Surgery* 2020; **14**: 11.
25. Organization WH. WHO statement on caesarean section rates: World Health Organization; 2015.
26. Abdullahi YY, Assefa N, Roba HS. Magnitude and determinants of immediate adverse neonatal outcomes among babies born by cesarean section in public hospitals in Harari Region, Eastern Ethiopia. *Research and Reports in Neonatology* 2021; **11**: 1-12.
27. Fawcett J, Aber C, Haussler S et al. Women's perceptions of caesarean birth: A Roy international study. *Nursing science quarterly* 2011; **24**: 352-62.
28. Roy C, Andrews HA. The Roy adaptation model: Appleton & Lange Stamford, CT 1999.
29. Schacht R. Husserlian and Heideggerian Phenomenology. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition* 1972; **23**: 293-314.
30. Assefa N, Semahegn A. Fertility is below replacement in Harar Health and Demographic Surveillance System (Harar HDSS), Harar town, Eastern Ethiopia. *Fertil Res Pract* 2016; **2**: 10-.

31. Ethiopian Public Health Institute FMoH, Addis Ababa, Ethiopia, and The DHS Program, ICF, Rockville, Maryland, USA. Ethiopia Interim DHS, 2019. Ethiopia; 2019.
32. Van Zyl SF, Burke JL. Increasing the labour epidural rate in a state hospital in South Africa: challenges and opportunities. *Southern African Journal of Anaesthesia and Analgesia* 2017; **23**: 156-61.
33. Waldum ÅH, Jacobsen AF, Lukasse M et al. The provision of epidural analgesia during labor according to maternal birthplace: a Norwegian register study. *BMC pregnancy and childbirth* 2020; **20**: 1-10.
34. Patton MQ. Qualitative interviewing. *Qualitative research and evaluation methods* 2002; **3**: 344-7.
35. Suri H. Purposeful sampling in qualitative research synthesis. *Qualitative research journal* 2011; **11**: 63-75.
36. Guest G, Bunce A, Johnson L. How Many Interviews Are Enough? *Field Methods - FIELD METHOD* 2006; **18**: 59-82.
37. Saunders B, Sim J, Kingstone T et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant* 2018; **52**: 1893-907.
38. Elo S, Kyngäs H. The qualitative content analysis process. *Journal of advanced nursing* 2008; **62**: 107-15.
39. Kibiswa NK. Directed qualitative content analysis (DQlCA): A tool for conflict analysis. *The Qualitative Report* 2019; **24**: 2059-79.
40. Elo S, Kääriäinen M, Kanste O et al. Qualitative content analysis: A focus on trustworthiness. *SAGE open* 2014; **4**: 2158244014522633.
41. Guittier M-J, Cedraschi C, Jamei N et al. Impact of mode of delivery on the birth experience in first-time mothers: a qualitative study. *BMC Pregnancy and Childbirth* 2014; **14**: 254.
42. Nilsson L, Thorsell T, Hertfelt Wahn E, Ekström A. Factors influencing positive birth experiences of first-time mothers. *Nursing research and practice* 2013; **2013**.
43. Ugwu NU, de Kok B. Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria. *Reprod Health* 2015; **12**: 70.
44. Ryding EL, Wijma K, Wijma B. Experiences of emergency cesarean section: A phenomenological study of 53 women. *Birth* 1998; **25**: 246-51.
45. Richard F, Zongo S, Ouattara F. Fear, guilt, and debt: an exploration of women's experience and perception of cesarean birth in Burkina Faso, West Africa. *International journal of women's health* 2014; **6**: 469.
46. Ugwu NU, de Kok B. Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria. *Reprod Health* 2015; **12**: 1-13.
47. Rishworth A, Bisung E, Luginaah I. "It's Like a Disease": Women's perceptions of caesarean sections in Ghana's Upper West Region. *Women and birth* 2016; **29**: e119-e25.
48. Hosseini Tabaghdehi M, Keramat A, Kolahdozan S et al. Positive childbirth experience: A qualitative study. *Nursing Open* 2020; **7**: 1233-8.
49. Mohale H, Sweet L, Graham K. Maternity health care: the experiences of Sub-Saharan African women in Sub-Saharan Africa and Australia. *Women and Birth* 2017; **30**: 298-307.
50. Missal B, Clark C, Kovaleva M. Somali Immigrant New Mothers' Childbirth Experiences in Minnesota. *Journal of transcultural nursing : official journal of the Transcultural Nursing Society* 2016; **27**: 359-67.
51. Husby AE, van Duinen AJ, Aune I. Caesarean birth experiences. A qualitative study from Sierra Leone. *Sexual & Reproductive Healthcare* 2019; **21**: 87-94.

52. Rosen HE, Lynam PF, Carr C et al. Direct observation of respectful maternity care in five countries: a cross-sectional study of health facilities in East and Southern Africa. *BMC pregnancy and childbirth* 2015; **15**: 1-11.
53. Kinney MV, Boldosser-Boesch A, McCallon B. Quality, equity, and dignity for women and babies. *The Lancet* 2016; **388**: 2066-8.
54. Wigert H, Nilsson C, Dencker A et al. Women's experiences of fear of childbirth: a metasynthesis of qualitative studies. *International journal of qualitative studies on health and well-being* 2020; **15**: 1704484.
55. Organization WH. Counselling for maternal and newborn health care: A handbook for building skills: World Health Organization 2010.
56. Isbir GG, Mete S. Experiences with nausea and vomiting during pregnancy in Turkish women based on roy adaptation model: a content analysis. *Asian nursing research* 2013; **7**: 175-81.

Authors' contributions

Under the co-authors' supervision, the principal investigator designed the study, participated in data collection, and analyzed and interpreted the results. The co-authors reviewed the draft result and approved the final result. All authors read and approved the final manuscript.

Competing interests

The authors declared that they have no competing interests

Availability of Data and Material

All the data of this study are available from the corresponding author upon request

Funding sources

Funded by Haramaya University, Award/Grant number is not applicable

List of Abbreviations

CS: Cesarean Section
ECS: Elective CS.
HFSUH: Hiwot Fana Specialized University Hospital
NICU: Neonatal Intensive Care Unit

BMJ Open

Women's Hospital Birth Experiences in Harar, Eastern Ethiopia: A Qualitative Study Using Roy's Adaptation Model

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-055250.R1
Article Type:	Original research
Date Submitted by the Author:	02-Dec-2021
Complete List of Authors:	Tefera, Maleda; Haramaya University Assefa, Nega; Haramaya University Roba, Kedir; Haramaya University Gedefa, Letta; Haramaya University Brewis, Alex; Arizona State University Schuster, Roseanne; Arizona State University
Primary Subject Heading:	Nursing
Secondary Subject Heading:	Obstetrics and gynaecology, Health services research
Keywords:	Maternal medicine < OBSTETRICS, REPRODUCTIVE MEDICINE, Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Women's Hospital Birth Experiences in Harar, Eastern Ethiopia: A Qualitative Study Using Roy's Adaptation Model

Maleda Tefera[1], Nega Assefa [1], Kedir Teji Roba [1], Letta Gedefa [2]Alexandra Brewis[3] Roseanne C. Schuster[3]

Authors' Affiliation

[1]School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[2]School of Medicine, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[3]Center for Global Health, School of Human Evolution & Social Change, Arizona State University

Authors emailaddress

Maleda Tefera: maledaifa.21@gmail.com

Nega Assefa: negaassefa@yahoo.com

Kedir Teji; Roba: kedir.t.roba@gmail.com

Letta Gedefa: lettagedda@gmail.com

Alexandra Brewis[3]: alex.brewis@asu.edu

Roseanne C. Schuster[3]: roseanne.schuster@asu.edu

Corresponding Author Maleda Tefera: maledaifa.21@gmail.com School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia, Po. Box 235, Phone: +2519947792

Abstract

Objective: The purpose of this qualitative study was to explore women's birth experience in public hospitals at Harari region eastern Ethiopia

Setting: Public hospitals (Hiwot Fana specialized university hospital and Jugal hospital)

Study design: A phenomenological qualitative study design was used

Study participants: The study enrolled women who gave birth at selected hospitals. Purposive sampling was used to conduct in-depth interviews with 38 women who gave birth to singleton, full-term babies via vaginal delivery or Cesarean section (CS) with no pregnancy-related complications. Twenty of the women (52.6 percent) had CS, while the remaining 18 (47 percent) had vaginal births. Data was collected and analyzed using RAM's four components: physiological, self-concept, role and function, and interdependence. The interviews were audio-recorded and transcribed on the spot and the interviews were analyzed using a deductive content analysis approach.

Results:an RAM framework, variousbehaviors were identified; under physiologic mode, common behaviors identified included labor pain, fatigue, surgical site pain, and anesthesia-related complication. The women's major problems in self-concept mode were concern for future pregnancy, lack of privacy, newborn health status relationship with health care providers, and lack of family support. Due to the prolonged hospital stay and surgical site pain, the women who were unable to care for themselves, their newborn babies, and their families adapted poorly to role function mode. Finally, the women who had no family support and who got less attention from health care providers had ineffective adaption for interdependent mode

Conclusions: Application of RAM principles to improve care will benefit Ethiopian women, providing an intervention framework that can gauge and correct interacting factors that make them vulnerable to negative birth experiences.

Strengths and Limitations: of this study

- This theory-driven design using RAM provided a strong, conceptually defined framework for our analysis.
- Some concepts from RAM (e.g., stimuli system, adaptation level, innate and acquired coping mechanisms) and other RAM tenets (e.g., cognator and regulator mechanisms) were not used because these variables would require quantitative assessment (e.g., Likert scale).
- By focusing on the four modes selected, we comprehensively explored the most important parts of 'women's birth experience.

- The in-depth interviews were conducted early in the post-partum period (1-2 days after birth) as most participants' homes were far from hospital this means follow-up to discern if perceptions changed after women left hospital was not possible.
- This may have decreased recall bias of the birth experience, however the woman may not have been able to draw on her entire post-partum experience in her responses

Keywords: Roy's adaptive mode; Birth Experience; Natural/vaginal delivery; Cesarean section;

Introduction

Giving birth is potentially (but not always) a joyful event in a woman's life,[1] ideally enhancing a woman's self-confidence and creating attachment to the newborn , [2]A positive birth experience is generally characterized by a sense of autonomy, choice, access to accurate information, and feeling respected, [3]This experience can be enhanced through positive relationships with health professionals, [4] Fear, excessive pain, a perceived lack of support, discomfort, and unfavorable outcomes characterize a negative birth experience, [5, 6] 2018 WHO guidelines on intrapartum care recommended that, in addition to safe labor and childbirth, women's psychological and emotional needs be met in order for women to feel safe, comfortable, and positive about the childbearing experience, [7] This is due, in part, to the fact that post-partum maternal emotional wellbeing is influenced by birth experiences, [8] and poor post-partum mental illness symptoms – often measured as depression - negatively impact health-seeking (e.g., child immunizations,[9]) caregiver behaviors (e.g., breastfeeding, [10] and early childhood development (e.g., underweight and stunting), [11]

According to studies from higher income countries, a positive birth experience results from family support, a relationship with health care providers, maintaining privacy in terms of body exposure and the number of delivery attendants, and the ability to perform as a mother, [12, 13] There are few studies from Africa, but one from Ugandan also showed that improper care, poor communication, and compromised privacy contributed to the mothers' negative childbirth experiences, leading, [14] This is reportedly a common reason for home delivery in African countries, [15-18]

Over 70% of Ethiopian women give birth outside of the healthcare system (CSA Ethiopia 2016).). Most Ethiopian women give birth at home for various practical reasons (e.g., geographic, economic). Localized reports tell a very different story, pointing to emotional reasons, particularly concerns about how health care professionals will treat them. A recent qualitative focus-group-based study in North West Ethiopia discovered that the perception of "disrespectful treatment" was a major reason many women avoided giving birth in hospitals, [19] Concerns about the low quality of service and a lack of respectful and supportive care were most frequently expressed by women who had previously given birth in hospitals, which was part of the rationale for this study (i.e., based on their own experiences). Other focus-group and interview-based studies also similarly suggested that mistreatment by staff is a factor, [20, 21] One study in Bahia Dar, based on surveys of 284 women, also noted that almost half of women reported "abuse" in their experiences of hospital births, [22] Another survey of 379 post-

partum women in the Amhara region, 74% reported "mistreatment," and 72% noted poor rapport with healthcare professionals in hospitals, [23]

The study was designed with a care framework – Roy's Adaptation Model (RAM) – widely used in the field of Nursing and used here to organize, theorize, interpret, and suggest ways to improve Ethiopian women's hospital-based birth experiences. We selected this model because it is part of the suite of existing models for women-centered care, and thus it provides a means bridge examining women's experiences and considering how to improve nursing and other supportive care within health facilities. In addition, RAM allows us to identify where and how women's varied birth experiences fail to be "adaptive." "Adaptation" here refers to the successful interaction between a person (the new mother) and contextual stimuli (including hospital staff). To the best of our knowledge, there is no study in the country that explores women's birth experiences based on their mode of birth using Roy's adaptation model. Thus, this qualitative study uses a novel analytic approach to consider Ethiopian women's hospital birth experiences, focusing on women's perceptions of processes around birth that deviate from what they expect as the quality of care.

Theoretical Framework for Birth Experience: 'Roy's Adaptation Model

RAM conceptualizes a woman's positive or negative birth experience as the outcome of process, involving care by others. In this model, good nursing must first address the focal stimuli of a medical event (here: the birth experience, whether vaginal or CS) but also take into account contextual stimuli. This includes factors such asocio-demographic knowledge, a relationship with a health provider, the hospital setting, newborn status, the number of caregivers, and the experience of health professionals, all of which influence the response to the focal stimulus directly to adaptation. Residual stimuli deals with women perceptual or attitude toward mode of birth. The regulator subsystem of Roy's model, which deals with neurological, chemical, and hormonal responses was not used in this study. Perceptual/information processing, learning, judgment, and emotion are all part of the cognator (coping) subsystem. This was represented by the perception of the birth experience, which includes feelings or emotions about labor or perioperative procedures, delivery process, and intervention during delivery, and initial contact with the infant, [24]A negative birth experience is interpreted as ""inadequate adaptation"" in the Roy Adaptation Model.

Using the RAM, women's responses to stimuli are organized in four main modes of adaptation: physiological, self-concept role function, and interdependence. The physiological model encompasses the physical and chemical processes involved in human function. Fatigue, pain, surgical wound, need

for sufficient healing period and decreased mobility considered as the physiological mode in this study. The self-concept-group identity mode is the emotional aspect, including feelings about oneself and the perception of others' reactions, whereas the role function mode deals with social integrity by concentrating on the performance of activities related to the various roles one passes during life ,[25] For women who gave birth, the role function was to perform as the mother and a wife after exposure to the stimuli (mode of delivery). The interdependence model emphasizes satisfying relationships between the individual and significant others, [25] In our case, the interdependence mode included a partner or family support, interaction with health professionals, social support, and contact with the newborn, and the like.

In this study, we use qualitative data collected during interviews with 38 women following their hospital births to identify how each mode of RAM is experienced; the analysis uses those categories as the interpretive framework. The analytic emphasis is on the distinctions of a focal stimuli (vaginal versus CS) and how that differently shaped women's understandings and meanings of their birth experience, using a phenomenological approach that seeks to create a comprehensive, accurate, clear, and articulate description and understanding of a specific human experience or experiential moment,[26]

Methods

The methods are built on the consolidated criteria for reporting qualitative research (COREQ) framework, including 32 items divided into three domains: research team and reflexivity, study design, and data analysis and reporting. The checklist aids in reporting essential aspects of the research team, study methods, study context, findings, analysis, and interpretations.

The research team and reflexivity

The research team included public health professionals, Nurse and social scientists.The interview and analytic team were all women with long-term experience in the study area

After the research team provided refresher training, two female researchers with experience in qualitative research methods and subject knowledge conducted in-depth interviews.

Prior to the start of the study, there was no interaction between the researcher and the participants. This reduced the potential impact of unequal distribution of power between researchers and participants.In addition, the participants had never met any of the researchers. All participants, however, were aware that the interview was being recorded for research purposes.

Study Design and Period

Phenomenological approach qualitative study design was employed among women who gave birth at two public hospitals from April to May 2021.

Study setting

The in-depth interviews wereconducted at public hospitals in the Harari Region. There are three government hospitals and one private hospital in the study area. Therefore, this study is restricted to two public hospitals: Hiwot Fana Hospital specialized and Jugal General Hospital.

Hiwot Fana Specialized Hospital (HFSH)

HFSUH is one of the oldest hospitals in Harar, established during the Italian occupation (1928-1933). In the recent two-three decades, the hospital has become a teaching facility for health sciences students for Haramaya University. It has a total of 233 beds for admission. The annual number of patients visiting the hospital reached 114,650, with an average of 11,957 admissions per year.[27]. The maternity unit offers about 5808 deliveries annually and provides 830 caesarian deliveries annually, [28]

Jugal Hospital

Jugal hospital is also the oldest hospital in Harar. It was built in 1957 EC by King Haile Selase in memory of his father, Ras Mekonen. The maternity unit has six prenatal beds, two delivery couches, one newborn resuscitation bed, and eight postnatal beds. In this unit, on average, 3000 deliveries are conducted annually, [29]

Study population and sample

Our study was based in the Harari region, Ethiopia, where the birth rate increased exponentially, with 20.3 births per 1000 in 2013,[30]The average number of children per woman is four,[31]

Notably, women undergoing vaginal delivery in this study were not offered pain relief, typical in most parts of Ethiopia. In addition, the hospitals' protocol explicitly prohibits the administration of epidurals to laboring mothers. This is an essentialcontextual distinction with other studies,[32, 33]

During the study period, approximately 797 women delivered babies in these two hospitals. Early COVID-19 restrictions were in place so that at HFSUH,no family was allowed to attend the birth. However,at Jugal,there were no restrictions on family attendance, sothe family was typically present.Eligibility criteria for study participants were women who gave birth at these study hospitals, had no pregnancy-related complications, carriedsingleton baby to term, delivered vaginally or by CS, andspokeone of the two common local languages. In addition, women with severepoor birth outcomes (e.g., stillbirth, preterm, orcongenital malformation) orwho were admitted for more than

one week (again indicating severe birth or post-partum complications) were excluded. To sample based on the delivery type and potentially significant differences in backgrounds, women were categorized into two groups based on the mode of delivery: vaginal delivery and CSdelivery.

Stratified purposeful sampling was then employed to select participants, illustrating the variation in the experiences of these particular subgroups, and facilitatecomparisons. Stratified purposeful samples are samples within samples where each stratum is fairly homogenous. Stratified purposeful sampling aims to capture major variations, even if a common core emerges from the analysis,[34] It is also helpful for investigating variations in the manifestation of a phenomenon as any key factor associated with the phenomenon changes,[35]

Recruitment was done at the maternity ward, and study information,including voluntary participation, the study's aim, and methods, were explained. Finally, participants gave their written consent to join the study, with oversight by the University of Haramayainstitutional review board.

Data collection

The majority of the women accepted the invitation, but three women declined to participate in the study. We interviewed 18 women who had vaginal deliveries and 20 women who had CS, exceeding the commonly accepted minimum number of twelve interviews needed to reach thematic saturation, [36] Taking into account the stratification of women based on the mode of birth, residency, and parity, we include 38 women to reach the saturation level

Interviews took place 1-2 days after the delivery.Interviews continued until sub-group saturation for both vaginal and CS delivery was reached. Saturation involves sampling until no new themes are obtained so that further interviews would yield redundant information,[37]

The semi-structured interview guide was organized around RAM and included open-ended questions related to the four domains of RAM (physiological, self-concept, role and function, and interdependence).In addition, the interview guide was pre-tested with five participants at another Haramaya hospital (not included in the study), and the interview guide was revised accordingly to elicit detailed responses relevant to the study objectives.

The trained facilitators conducted in-depth interviews using the semi-structured protocol, accompanied by a dedicatednote-taker in Amharic or Afan Oromo, per the woman's preference. Emphasis was placed on confidentiality to create a comfortable environment for the participants to share more intimate details and provide a comprehensive description of their experiences. Prompts such as "tell me more," "what happened next," and "please elaborate" were consistently used to elicit more detail. The note taker additionally recorded observations of the women's non-verbal reactions

such as laughter, crying, eye contact, facial expressions, and signs of fear and discomfort, later aligned with the interview transcript.

Data processing and analysis

The audiotapes were transcribed verbatim in Afan Oromo or Amharic and checked the same day as the interviews by the principal investigator. The interviewer and note-taker then translated the transcripts into English. The principal investigator reviewed the translation alongside the contextual notes taken during the interview to represent the context accurately. The translated files were transferred in plain text format to an open-code 4.02 software and coded. Because the data collection and analysis were done concurrently, the following interview was conducted after the previous one was completed. The interviewer read the entire text of each interview in English language and created an interpretive summary. These interpretive summaries were inserted into the final product, a personal experience narrative.

A content analysis approach using deductively derived codes was used to analyze transcripts. Researchers review the data using existing theories and concepts in a deductive approach, and these concepts are often incorporated into the initial codes as domains[38, 39] Initial codes were generated to identify the data features in line with the research questions, and the consistency of codes between the two coders was checked. After reached on a consensus about coding and the codes were applied to all subsequent transcripts.

The four RAM modes were thus identified as the prominent domains before accessing the data. These codes were systematically applied to the transcripts so that two reviewers tagged all statements relevant to the research question and RAM, and differences were resolved by discussion within the research team. The research team then reviewed all the excerpts tagged under each code and analyzed the narrative experiences of each group of women who delivered vaginally or by CS according to RAM, substantiating with quotations.

Data quality control

The trustworthiness of data was be kept throughout the procedure, using four common criteria of credibility, dependability,conformability,and transferability,[40]To address credibility, the interviewer spent more time building rapport, which aid to get in-depth information and summarizing the participants' responsesafter finishing the interviewand then discussing with peers - the lead researcher and senior researchers –both to ensure alignment with the purposes, methods, and procedures and to achieve persistent observation or identify those characteristics and elements that are most relevant to the problem or issue under study, on which you

will focus in detail, [40]In addition, we triangulated the participants in terms of educational status, residency, and parity to get compressive experiences.

Regarding dependability and conformability, the same protocol was applied, and the process was documented; the same interview guide was used for each participant, transcripts were matched with the audio records to confirm the consistency, and findings were supported with quotes from transcripts. To ensure transferability, the sampling techniques, inclusion criteria, and the main characteristics of the participants were all clearly stated. In addition, field notes and detailed notes on nonverbal reactions of participants during the interview were used to create a thick description that speaks to transferability

Patient and public involvement: Patients were not involved in this study

Results

The majority of the 38 women interviewed were in the age range of 15-24 (47.3%), married (100%), Muslim by religion (81.5%), of Oromo ethnicity (76.3%), non-literate (52.6%), and identified their occupations as housewives (71%) (Table-1). The majority of women were multiparous (71%), 18.6% had a previous CS birth, and 13% had a history of stillbirth. The majority (92%) of the women were referred to the hospital by another health facility (private clinics, district hospitals, and health centers). (Table 1). Central to our study question, 47.4% delivered vaginally and 52.6% delivered by CS.

Table 1.Socio-demographic and obstetric characteristics participating mothers who delivered singleton, term infants

Variable		Vaginal delivery N=18(%)	Cesarean section N=20(%)	Total delivery N=38
Age in years	15-24	10(55.5%)	8(40%)	18(47.4%)
	25-34	7(38.9%)	5(25%)	12(31.6%)
	35-46	1(5.6%)	7(35%)	8(21%)
Residency	Urban	10(55.6%)	5(25%)	15(39.5%)
	Rural	8(44.4%)	17(85%)	23(60.5%)
Marital status	Married	18(100%)	20(100%)	38(100%)
Ethnicity	Oromo	13(72.2%)	16(80%)	29(76.3%)
	Amhara	4(22.2%)	3(15%)	7(18.4%)
	Gurage	1(5.5%)	1(5%)	2(5.3%)
Working outside the home	Employed	4(22 %)	7(35%)	11(29%)
	Housewife	14(77.8%)	13(65%)	27(71%)

Religion	Muslim	17(94.4%)	14(70 %)	31(81.6%)
	Orthodox	1(5.6%)	4(20%)	5(13 .2%)
	Protestant	0(0%)	2(10%)	2(5.3%)
Educational level	Non-literate	13(72.2%)	7(35%)	20(52.6%)
	Literate	5(27.8%)	13(65%)	18(47.4%)

RAM	Codes	Example of Quote
Physiologic mode	Fatigue, Pain Activity intolerance	"..... The feeling in the recovery room after the operation was horrible. I could not turn to the side. I

Parity	Nonporous	6(33.3%)	5(25%)	11(29%)
	Multiparous	12(66.7%)	15(75%)	27(71%)
History of previous CS	Yes	2(1.1%)	5(25%)	7(18.4%)
	No	16(88.9%)	15(75%)	31(81.6%)
Previous stillbirth	Yes	1(5.6%)	4(20%)	5(13.2%)
	No	17(94.4%)	16(80%)	33(86.8%)
Previous neonatal death	Yes	2(11.1%)	0(0%)	2(5.3%)
	No	16(88.9%)	20(100 %)	36(94.7%)
Having referral	Yes	17(94.4%)	18(90%)	35(92.1%)
	No	1(5.6%)	2(10%)	3(7.9%)

The key category in this analysis was RAM adaptation modes. Women's adaptation behavior differed depending on their characteristics such as parity, educational level, and residency,
It is also influenced by the mode of delivery. The four adaptive types of RAMs are used to categorize the participants' behaviors. Fatigue, pain, activity intolerance, and anesthesia effect were the common behaviors identified under the physiologic mode. For self-concept mode, loss of self-confidence the concern of future pregnancy and lack of privacy were the most frequent codes, self and family care deficit were identified under role and function mode. Finally, family support and relation with health care providers were tagged under interdependent mode (Table 2)

	Anesthesia effect Surgical site wound Feeling comfort Ability to control the pain	was in severe pain, and to feed the breast for the baby was very difficult." [25-year-old women
Self-concept mode	Loss of self-confidence The concern of future pregnancy Lack of privacy New hospital environment Newborn health status Changing the plan in a mode of delivery Perception of childbirth Interaction with health professionals	"...When they told me that I could only be delivered through CS and that this would be my last CS because I had two previous CS. I was saddened, and my blood pressure rose because my husband and his family needed many children, which also encouraged the community and religious leaders..." [34-year-old, multiparous mother, cesarean section]
Role function mode	self-care, newborn and family care hospital stay Pain	A 35-year woman"... Some women with CS were discharged after three days, but I have been here for five days because I am in treatment. I prefer to return home after delivery, but I had to stay here for five days due to this CS, and I have four children at home who require my attention, and we have spent all of the money we have, so we want to go home."[35 year old, multiparous mother, cesarean section]
Interdependence mode	Interaction with HP The Concern of COVID 19 Family support	"...We are at high risk for COVID-19, but hospital administration is reluctant against COVID prevention. The visitors and health providers did not use COVID-19 protection, the hospital must focus on problem prevention. Imagine if a mother is infected, how many people can be affected at once. As you can see, there are more than eight beds in one room and more than three people on each bed so that you can estimate the scope of the problem."[25 year old, first time mother,

		vaginal delivery]

Table.2. Codes and Quotes under RAM

Physiological mode

The physiological mode of the RAM, as noted, encompasses the physical and chemical processes involved in human function, during and following the birth process, fatigue, pain, surgical wound, and decreased mobility the dominant physiological problems. Adapting to physiologic mode was reported as moredifficult for women who gave birth via emergency CS because they experienced labor pain as well as pain from the surgical procedure. These women described the labor pain as uncontrollable and mentioned the complexities of the CS procedure. Itsafter-effects include loss of body control, numbness, prolonged lying on the back, and feeling chilled, all reported as negative experiences. Besides, the pain around the surgical site is intense and intolerant without anti-pain.

"I was referred from the health center [to the hospital] after six hours of labor. The labor pain was difficult to describe; the contractions were frequent with pushing down pain, but the baby did not engage. The doctor decided to perform a cesarean section. The feeling in the recovery room after the operation was horrible. I could not turn to the side. I was in excruciating pain all over my body, and to feed the breast for the baby was very difficult."[A 25 year –old woman, CS]

Some women prefer the elective Cesarean section (Cesarean section before the occurrence of labor), and they showed adaptive behavior to physiologic mode.On the other hand,those who underwentemergency CS had ineffective adaption for this mode. The reasons for choosingelective CS were fear of labor pain, the previous bad experience of vaginal birth, and having previous CS.

"My previous birth experience was not positive, and I waited for a normal birth for more than 16 hours before giving birth through CS. Not to repeat this bad experience, I would prefer elective CS for my current pregnancy. However, when I compared this birth to the previous one, I felt better because the pain is only from the surgical site, and I did not experience labor pain."[A 37-year-old multipara mother CS]

Most women in the urban who had previously had CS preferred elective CS and were unwilling to try a vaginal birth. However, even those who agreed to try vaginal birth after CS lacked the patience to wait for labor to progress;as a result, they requested CS.

"……I had previous CS, and the midwife counseled me to have a vaginal birth. My family also advised me to try a vaginal birth. I agreed to give birth vaginally, but the pain was too much for me; I couldn't stand the pain and was exhausted, so I requested CS."[A 30year –old woman]

However, the women from the rural area preferred the natural birth mode; even they refuse CS to accurate indication

"…..The baby was buttocks down [rather than head down], and they advised me to have a cesarean section, which I refused. We reached an agreement after a lengthy discussion with my family, but I was still hesitant to give birth via CS because it had significant consequences"[A 26year –old woman CS]

Those women had poor adaptation to physiologic mode. Staying for more days at the hospital, surgical wound, and activity intolerance were the main reasons for the negative birth experience

"I was very active in doing things during my previous delivery because I had a normal delivery, but now I had CS. I can't move, can't even go to the toilet, and can't breastfeed or care for my baby because of surgical wound pain."[A 28 year –old woman]

According to women who give birth naturally, labor pain is incomparable, taking their breath away and making them unable to speak. However, the pain is gone after delivery and is immediately forgotten after birth. Following the birth, there is some contraction pain, and the body becomes exhausted.

"The labor began at night with back pain, and by the middle of the night, it had become severe and uncontrollable. We arrived at the hospital around 2 a.m., but I gave birth around 10 a.m. Oh, the pain was difficult to describe, but I had forgotten everything as soon as I gave birth. I couldn't even speak after giving birth because I was so exhausted."[A 24year –old woman]

This experience varies depending on the characteristics of the women; women from rural areas accept labor pain as a necessary part of motherhood and control the pain with patience.These women agreed on the severity of the pain, but it is a natural eventawarded by Allah. Every woman should go through this agony; giving birth through elective CS is an attempt to influence Allah's work.

Pain and exhaustion in primiparous women, on the other hand, are unexpected and stressful. The first-time women explained that labor pain is worse than anything they could imagine;it lasted a long time. During the actual delivery, the body becomes numb and exhausted, making pushing the fetus extremely difficult.

"It's difficult to describe the pain; I thought I was going to die. When the contraction came, I squeezed the hand of the medical student who was following me, and he put my hand on the bed and told me

to handle the edge of the bed. However, when the contraction came again, I began to squeeze his hand because I couldn't control the pain. Finally, my body became exhausted during the actual birth, and I could not push the baby. I requested an operation, but they refused. I gave birth with their assistance."[A 22year –old woman]

Self-concept mode

Women in this study did not feel sure and in control. Almost all women, particularly those who gave birth atHFSUH, stated that they were exhausted by being bombarded with frequent and repetitive questions from variousmedical and midwivesstudents.

The women also claimed that procedures like vaginal examinations and catheter insertion were performed in front of many students and staff members without their consent. As a result, the body becomes constricted, making it challenging to complete the procedure quickly.

"Students kept approaching me with the same question. This was tedious because I was in pain and even cried when I was overwhelmed. Furthermore, the examination was performed in front of many students, which was extremely humiliating. If they maintain privacy, the body can relax, and they can do anything they want." [A 28year old, multiparous mother, CS]

Adaptive self-concept also depends on having support, changing the plan in a mode of delivery, and newborn health.

"I assumed I'd be able to give birth naturally. However, the health professional informed me that I would be unable to give birth naturally due to two previous cesarean sections. This was concerning news that raised my blood pressure." [A 26year old, multiparous mother,CS]

Cry. "The labor started at the workplace (at the market), I called my neighbor, and he took me to the hospital. He told them to support me because I have no family. My husband islooking for work in Adama, I have two children, 12 and 4 years old.Thedeliverytime is not long, but I cannot push the baby. I gave birth withthe help of the device.Thedevice traumatized the baby's head andwas sent tothe neonatal intensive care unit (NICU).I'm scared and concerned about my baby's health. My two children also require my assistance, but I am here because of the baby. I'm anxious and depressed as a result of all of this." [34year old, multiparous mother,vaginal delivery]

Women from rural areas fared better in terms of adaptation than urban and educated women. They readily accept the condition, with little or no help from family or health care providers. The multiparous women who came from the rural areas and gave birth through instrumental delivery explained that one should accept whatever life offers because Allah's will controls everything.

"I finished the labor at home. As soon as I arrived at the hospital, they took me to the delivery bed, the baby was in trouble, and they assisted me with the device. However,he did not cry well after the baby was born and injured his head, transferring him to the NICU. ButI am not stressed because this is Allah's job; if he belongs to me, he will cure if Allah creates for him, I will get him at heaven." [22-year-old, multiparous mother,vaginal delivery]

The perception of childbirth, hospital environment, and relationship with the health care provider all influenced primiparous women's adaptation to self-concept behavior.

"I was concerned because my friend's birth experience had been traumatic; she had labored for more than 20 hours, and there were rumors about this hospital such as, if you go here, you will be on the doll for students, so I was afraid when I was referred here, but the treatment they provided me disproved the rumors.".[28-year-old, first-time mother, vaginal delivery]

Women who gave birth naturally had effective self-concept adaptation, whereas those with an emergency cesarean section had poor self-concept adaptation. They explained that childbirth pain is excruciating, but tolerating it helps build self-confidence and motherhood satisfaction.

"I labored for 15 hours, the contraction pain is severe especially nearest birth, but it went immediately after birth, I'm healthy, and I said yes, I did it." 'I'm glad I made it through the difficult period." [20-year-old, multiparous mother, vaginal delivery]

Women who gave birth by emergency CS, on the other hand, stated that in most cases, CS is indicated when the baby or the mother is in danger, but surgical procedure introduces additional risks and causes a great deal of anger and stress.

"...after 4-hour labor, the doctor advised me to have my baby delivered via Cesarean section because [the baby] was in distress; this was an unwelcome new experience for me. Furthermore, I became anxious and even cried and asked them to tell my husband and family because I feared I would die. So, before the operation, I decided to talk with my family and entrust my children to my family members [for care if do not survive the procedure]."[A 35-year-old, multiparous mother, CS]

Several women find the environment uncomfortable even after giving birth, and remaining in the hospital for several days does not provide comfort.

"I don't want to stay here; I want to go home and celebrate my birth with my family because you don't have autonomy. You don't get what you want, and you don't have privacy here. Furthermore, my family suffers alongside me because there is no place for relatives to rest at night here; they slept outside on the ground, so staying here

[A 22-year-old, first-time mother, CS]

Most Muslim women, in particular, were dissatisfied with having their children delivered via cesarean section. Because they believed that having CS in the current pregnancy would affect future pregnancies and limit their ability to have multiple children, resulting in divorce, or their husband would bring in a second wife into the household. As a result, most Muslim women refused CS delivery even when indicated".... refused CS and told them I'd rather die than give birth through surgery because if I gave birth to my first child via CS, the next would also be via CS, and I can't have more than two children via this mode, so my husband looked for another wife for getting more children." [A 18-year-old, first-time mother,vaginal delivery]

Those who gave birth through CS after receiving reassurance remained concerned about the future. Because their partners and families shared the same concerns, these women were not emotionally supported or reassured by their partners, families, or society. This limited number of children due to CS delivery was the primary cause of marital dissatisfaction, loss of self-confidence, and lack of trustin the health system.

"...When they told me that I could only be delivered through CS and that this would be my last CS because I had two previous CS. I was saddened, and my blood pressure rose because my husband and his family needed many children, which also encouraged the community and religious leaders..." [A 34-year old, multiparous mother, CS

Since the mode of delivery was arranged, the women who gave birth by elective CS had a positive self-concept, which they convinced themselves of during antenatal care visits.

"During my antenatal care visit, I decided on my mode of delivery, and when the time came to deliver, I was not afraid at all." It is common to feel some frustration when entering the operating room, but this dissipates once you communicate with the teams." [A 28-year old, multiparous mother,CS]

Role function mode

Role function mode deals with social integrity by concentrating on activities related to the various roles one passes during life,[25]s Most central role function for women who gave birth was to perform as the mother and a wife after delivery. The women delivered via CS report that breastfeeding and caring for the baby is difficult due to pressure from the incision site and associated uterine pains. On top of this, first-time women face more significant difficulties because of their lack of experience.

"..... I tried to breastfeed when the baby was crying but couldn't, due to the pain at the incision site and a lack of knowledge about treating the baby. Furthermore, the baby couldn't hold to the breast.

She tried to hold but couldn't. At the time, she was angry and crying a lot, which made me stressed, so she started bottle-feeding until I recovered from the pain."[A 24-year -old, first-time woman, CS]

In addition, the length of hospital stays influenced adaption concerning role and function mode for women who gave birth through emergency CS, especially those from rural areas. They clarified that staying in the hospital for several days is not suitable because they have children who need their care at home and are concerned about the financial implications of a prolonged hospital stay. Therefore, many women are not comfortable staying in the hospital for a long time.

"... Some women with CS were discharged after three days, but I have been here for five days because I am in treatment. I prefer to return home after delivery, but I had to stay here for five days due to this CS, and I have four children at home who require my attention, and we have spent all of the money we have, so we want to go home."[A 35-year old, multiparous mother, CS]

Adaptive behavior to role and function mode was observed in women who gave birth naturally, and they reported being able to transition into caring for the baby. After delivery, the health provider assisted in helping position the mother and baby for feeding so that once the baby began to suckle at the breast, breastfeeding was successful. Some first-time mothers clarified that while meeting their child for the first time was a wonderful experience, feeding and caring for their infant's extensive needs could be challenging for a while.

Interdependence mode

The interdependence mode emphasizes satisfying relationships between the individual and significant others,[25] In our case, interdependence mode included partner or family support, interaction with health professionals, social support, and contact with the newborn.

Due to COVID 19 restrictions, all women who gave birth at Hiwot Fana hospital were distressed that that access to the labor and maternity ward was limited, so they received no direct assistance from their families following delivery. Particularly for women who gave birth through CS,this meant women were unable to access physical and emotional support from family.

"...I had a difficult time after giving birth; caring for the baby is difficult due to pain in the incision site; I am unable to move, sit, or turn to the side. family support is critical in this situation, but I didn't get this chance."[A32-year-old, multiparous mother,CS]

Most women who gave birth at Hiwot Fana hospital appreciated the skill and kindness of their health professionals. However, the number of health care workers was limited, especially at night, so women could notreceive this critical help from the hospital staff, further complicating their experience. This was when family support was most needed but not available.

"No one is allowed to access the delivery and postnatal wards because of COVID-19. It is more challenging to breastfeed or care for the infant, so having someone in the family relieves stress." [23year old, first-time woman,CS]

The women explained that even getting food and clothes was very difficult, mainly for those who had no mobile phone to coordinate:"...It was not easy to locate health professionals when you needed their services. To get assistance for a problem, you must wait until they return. You wouldn't be able to get meals on time if you didn't have a mobile phone, and you wouldn't be able to change clothes. The phone is your only means of communication with your relatives". [A 28year -old, multipara, cesarean section]

The women from Jugal Hospital, on the other hand, had family support. However, some raised the issue of safety, stating that more than three family members could enter the ward for one woman without COVID-19 protection,increasing the risk of infection, and they recommended that the hospital limit the attendant with maximum protection.

"...We are at high risk for COVID-19, but hospital administration is reluctant against COVID prevention. The visitors and health providers did not use COVID-19 protection; the hospital must focus on problem prevention. Imagine if a mother is infected, how many people can be affected at once. As you can see, there are more than eight beds in one room and more than three people on each bed so that you can estimate the scope of the problem."[A 25-year old, first-time woman, vaginal delivery]

Some women from both hospitals explained that refusing advice from the health professionals resulted in verbal and physical abuse:

"I had been in labor for 20 hours, and the door of my womb did not open as expected. The doctors advised me to give birth via cesarean section, but I refused, and the health professionals who followed me became irritated and aggressive.I am still resisting the operation; he tried to take me by force, but I screamed and cried, then he hit me with a card and left the room. Finally, other health professionals came to see me, and he confirmed that the baby's head is coming out, so I gave birth vaginally with stitches". [A18-year-old, first-time woman, vaginal delivery]

Furthermore, some women stated that lack of adequate and timely procedures beginning with admission to post-partum care resulted in poor quality of carefor them and their babies, ranging from negligence to severe complications:

"..... I went to the hospital at night, and the midwife told me to go home because the cervix was not open, then I returned the following day. The midwife told me the same thing again, but this time I did

not return home because I had a baby on the way, and my family begged her to help me, but she insulted them.Finally, the baby's head emerged, and other medical personnel escorted me to the delivery bed with dignity". [A 28-year-old, multipara, vaginal delivery]

Some women also explained that the health professionals only care for the woman until she gives birth so thatthe critical care given post-partum is neglected:

"I gave birth through vaginal delivery at night, but there was still no health professional who visited us, even though I was in severe pain after birth. My partner went to the delivery unit and told them to check me, but they didn't come. Finally, I was fed up with waiting for them, felt angry, and tried to leave the hospital without permission, and on my way, I felt dizzy and fell, and I went back to my bed with the help of others." [A 34year old, multipara, vaginal delivery]

Discussion

Previous studies in Africa suggest women's generally negative perceptions of hospital birth experiences is a reason they avoid them. In considering these study results and their implications for maternity care, we focus on two key points: How do women interpret negatively or positively the role of nurses and other birth attendants based on the type of delivery. Furthermore, how does family attendance matter to perceptions of hospital births?

Based on our analysisof four components of RAM; physiological, self-concept, role and function, and interdependence mode., we find that women who give birth vaginally reported effective physiological adaptation. In contrast, women who gave birth via CS struggled with surgical site pain and after-effects of anesthesia. Similarly, women who had CS had less adaptation to self-concept, role and function, and interdependence related to anxiety about the surgical procedure, concern about limitations on future pregnancies, inability to care for themselves and their babies, and a lack of family and social support. In addition, these were associated with more negative birth experiences, as identified by women through interviews.

Our findings show that the mode of delivery, health professional and family support, newborn health status, previous experience, and changing of a plan in delivery all impact women's birth experience in this case

The labor pain itself was described as acomplex phenomenon that resulted in asense of confidence and accomplishment for women who delivered vaginally.

One particular feature of this study context is that vaginal delivery is – by hospital policy -- conducted without epidural. However, most women agreed that labor pain is a "normal" part of the childbirth process, and those who gave birth vaginally thus adapted well.This finding is consistent with other studies that have found a link between the social constructions of vaginal delivery as a signal of positive womanhood for women and defines it as a normal, natural, and preferred mode of delivery. Thus, vaginal delivery appears to be a symbol of womanhood,[12, 18, 41]In contrast, the emergency CS was associated with negative feelings, as those women experienced severe labor pain and pain from surgical inclusion after birth. The women had ineffective adaptation to physiologic mode, which resulted in a negative birth experience; this finding was consistent with other studies,[18, 42]

Fear of surgery, a lack of family support, and concern about future pregnancies were the primary causes of infective adaptation to self-concept. Almost all Muslim participants' mistrusted CS delivery, mainly because it was perceived to inhibit having more children because hospital policydoes not allow any woman to have more than three CSdeliveries. Other African studies have shown similar results: CS delivery is associated with stress and anxiety due to fear of pain and death andreligious and socio-cultural concerns related to its long and short-term repercussions,[43-45]

The majority of study participants failed to receive what they perceived as family support, which usingRAMwasthe primary cause of women's ineffective adaptive behavior to self-concept, resulting in a negative birth experience. This finding is consistent with other studies that found that women who received adequate healthcare provider and spouse support had a positive childbirth experience,[13] Adaptive self-concept mode was also influenced by such nursing actions as ensuring privacy and explaining the procedure before the performance. Most women stated that examinations were done in front of many students, without adequate warning, and so were humiliating. This has been described in other studies as a factor in negative birth experiences,[12]

Concerning role and function mode, giving birth via vaginal delivery increased the women's self-efficacy and enhanced their sense of motherhood. Women who delivered via CS, on the other hand, faced numerous challenges due to pain at the surgical site. They were unable to sit, move, or easily breastfeed. Those without additional family support struggled most. Furthermore, the longer admission times related to CS were distressing in itself because this cost more and meant women were further burdened by struggling to pay; this finding that the economics of CS ispart of the emotional distress it causes is congruent with other studies,[15-17]

However, in many African hospitals, the family is never permitted to participate in birth experiences. This is one reason that reportedly women choose to give birth at home, [15-18] In this specific case,

we are able to draw on the comparison of two hospitals with different visiting policies to consider how this may matter to women's experiences.

This study revealed that having support from both family and healthcare providers played a significant role in having a positive birth experience. Ineffective interdependence mode was observed more in women who get birth via CS, particularly those who gave birth at Hiwot Fana hospital, where family entry was more restricted.This finding is congruent with other studies in Sub-Saharan countries, which revealed that the participants valued a birthing environment that allows for family support.

Conclusion

Women's birth experiences were explored using Roy's adaption model. Surgical site pain, anesthesia-related complications, lack of privacy, the concern of future pregnancy, inability to care for self and family, poor family support, and receiving less attention from health care providers were the most common reasons for ineffective RAM adaption leads to a negative birth experience. Application of RAM principles to improve care will benefit Ethiopian women, providing an intervention framework that can gauge and correct interacting factors that make them vulnerable to negative birth experiences

Clinical Implications for Nursing and Beyond

A recent meta-synthesis of ethnographic studies of women's fears around childbirth by Wigert and colleagues (2019)[46]included studies from Australia, Iran, Norway, Sweden, and the US. Part of the bitterness and regret after imperfect birth experiences was directed toward birth attendants such as nurses and midwives; by the same token, women's positive experiences based on empathy were also expressed as part of the care from attendants.During labor and delivery, women may be helped by providing proper care, timely information, warmth, encouragement, and reassurance,[47]Our findings echo this general principle: the worst birth experiences were credited to the failings of hospital birth attendants. Some participants reported being verbally and physically abused.Unfortunately, this finding is not unique to our study and is reported elsewhere, [48] For example, a study in Uganda reported that physical and psychosocial support provided comfort, consolation, and encouragement to the mothers, while improper care, poor communication, and compromised privacy contributed to the mothers' negative childbirth experiences,[14] Furthermore, the indication that caring for women post-partum is less important now that she is not carrying her child is distressing and aligns with calls for quality, respectful, and dignified care for women,[49]

For Ethiopian women interviewed for this study, CS, in particular, worsened all aspects of adaptation during the birth process as defined by the RAM. Thus, applying RAM principles to Nursing will most

especially benefit Ethiopian women undergoing CS, providing a framework to consider all the interacting factors that make them vulnerable to negative experiences. In addition, the use of such models already recognizable to nurses and other health care professionals, bolstered by empirical evidence such as this study that indicate show and why care must be improved, will make a case for change more accessible.

.

Acknowledgments

We acknowledge Haramaya University, college of health and medical sciences, for funding. Our special gratitude goes to data collectors for their unreserved commitment and support.

Authors' contributions

Under the co-authors' supervision, the principal investigator (MT) designed the study, participated in data collection, and analyzed and interpreted the results. The co-authors (NA, KT, LT, AB, and RS) participate analyzed and interpreted the results. They also reviewed the draft result and approved the final result. All authors read and approved the final manuscript.

Funding sources

Funded by Haramaya University, the Award/Grant number is not applicable

Competing interests

The authors declared that they have no competing interests

Patient consent for publication Not required.

Ethical Consideration

Ethical clearance was obtained from the Institutional Health Research Ethical Review Committee (Ref. No. IHRERC/107/2020) at the College of Health and Medical Science, Haramaya University. The purpose, procedure and duration, possible risks, and benefits of the study explain using the local language. Then individual informed, voluntary, written, and signed consent was obtained from each participant.

Data availability statement".

All the data of this study are available from the corresponding author upon request

List of Abbreviations

CS: Cesarean Section

ECS: Elective CS.

HFSUH: Hiwot Fana Specialized University Hospital

NICU: Neonatal Intensive Care Unit

References

1. Downe, S., et al., *What matters to women during childbirth: a systematic qualitative review.* PloS one, 2018. **13**(4): p. e0194906.
2. Freund, A., *Expectations and experiences of first-time mothers*, 2008.

3. Karlström, A., A. Nystedt, and I. Hildingsson, *The meaning of a very positive birth experience: focus groups discussions with women.* BMC Pregnancy and Childbirth, 2015. **15**(1): p. 251.
4. Dahlberg, U. and I. Aune, *The woman's birth experience—The effect of interpersonal relationships and continuity of care.* Midwifery, 2013. **29**(4): p. 407-415.
5. Smarandache, A., et al., *Predictors of a negative labour and birth experience based on a national survey of Canadian women.* BMC Pregnancy and Childbirth, 2016. **16**(1): p. 114.
6. Waldenström, U., et al., *A Negative Birth Experience: Prevalence and Risk Factors in a National Sample*. Vol. 31. 2004. 17-27.
7. WHO, *WHO recommendations:: intrapartum care for a positive childbirth experience*, in *Sexual and reproductive health*2018.
8. McLeish, J. and M. Redshaw, *Mothers' accounts of the impact on emotional wellbeing of organised peer support in pregnancy and early parenthood: a qualitative study.* BMC Pregnancy and Childbirth, 2017. **17**(1): p. 28.
9. Matare, C.R., et al., *Maternal capabilities are associated with child caregiving behaviors among women in rural Zimbabwe.* The Journal of nutrition, 2021. **151**(3): p. 685-694.
10. Assarian, F., et al., *The association of postpartum maternal mental health with breastfeeding status of mothers: a case-control study.* Iranian Red Crescent Medical Journal, 2014. **16**(3).
11. Surkan, P.J., et al., *Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis.* Bulletin of the World Health Organization, 2011. **89**: p. 607-615.
12. Guittier, M.-J., et al., *Impact of mode of delivery on the birth experience in first-time mothers: a qualitative study.* BMC Pregnancy and Childbirth, 2014. **14**(1): p. 254.
13. Hosseini Tabaghdehi, M., et al., *Positive childbirth experience: A qualitative study.* Nursing Open, 2020. **7**(4): p. 1233-1238.
14. Namujju, J., et al., *Childbirth experiences and their derived meaning: a qualitative study among postnatal mothers in Mbale regional referral hospital, Uganda.* Reproductive Health, 2018. **15**(1): p. 183.
15. Husby, A.E., A.J. van Duinen, and I. Aune, *Caesarean birth experiences. A qualitative study from Sierra Leone.* Sexual & Reproductive Healthcare, 2019. **21**: p. 87-94.
16. Missal, B., C. Clark, and M. Kovaleva, *Somali Immigrant New Mothers' Childbirth Experiences in Minnesota.* J Transcult Nurs, 2016. **27**(4): p. 359-67.
17. Mohale, H., L. Sweet, and K. Graham, *Maternity health care: the experiences of Sub-Saharan African women in Sub-Saharan Africa and Australia.* Women and Birth, 2017. **30**(4): p. 298-307.
18. Nilsson, L., et al., *Factors influencing positive birth experiences of first-time mothers.* Nursing research and practice, 2013. **2013**.
19. Shiferaw, B.B. and L.M. Modiba, *Why do women not use skilled birth attendance service? An explorative qualitative study in north West Ethiopia.* BMC Pregnancy and Childbirth, 2020. **20**(1): p. 633.
20. Gurara, M., et al., *Traditional birth attendants' roles and homebirth choices in Ethiopia: A qualitative study.* Women and Birth, 2020. **33**(5): p. e464-e472.
21. Ababor, S., et al., *Socio-cultural Beliefs and Practices Influencing Institutional Delivery Service Utilization in Three Communities of Ethiopia: A Qualitative Study.* Ethiopian journal of health sciences, 2019. **29**(3).
22. Wassihun, B. and S. Zeleke, *Compassionate and respectful maternity care during facility based child birth and women's intent to use maternity service in Bahir Dar, Ethiopia.* BMC pregnancy and childbirth, 2018. **18**(1): p. 1-9.
23. Sheferaw, E.D., et al., *Mistreatment of women in public health facilities of Ethiopia.* Reproductive health, 2019. **16**(1): p. 1-10.

24. Fawcett, J., et al., *Women's perceptions of caesarean birth: A Roy international study.* Nursing science quarterly, 2011. **24**(4): p. 352-362.
25. Roy, C. and H.A. Andrews, *The Roy adaptation model*. Vol. 2. 1999: Appleton & Lange Stamford, CT.
26. Schacht, R., *Husserlian and Heideggerian Phenomenology.* Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition, 1972. **23**(5): p. 293-314.
27. HFUSH-HR, *services delivered and human resource in HFUSH*, 2019.
28. HFUSH-HMIS, *patient flow of hiwot fana specialized university hospital*, 2019.
29. JUGAL-HMIS, *Patient flow of the Jugal hospital*, 2019.
30. Assefa, N. and A. Semahegn, *Fertility is below replacement in Harar Health and Demographic Surveillance System (Harar HDSS), Harar town, Eastern Ethiopia.* Fertility research and practice, 2016. **2**: p. 10-10.
31. Ethiopian Public Health Institute, F.M.o.H., Addis Ababa, Ethiopia, and The DHS Program, ICF, Rockville, Maryland, USA, *Ethiopia Interim DHS, 2019*, 2019: Ethiopia.
32. Van Zyl, S.F. and J.L. Burke, *Increasing the labour epidural rate in a state hospital in South Africa: challenges and opportunities.* Southern African Journal of Anaesthesia and Analgesia, 2017. **23**(6): p. 156-161.
33. Waldum, Å.H., et al., *The provision of epidural analgesia during labor according to maternal birthplace: a Norwegian register study.* BMC pregnancy and childbirth, 2020. **20**: p. 1-10.
34. Patton, M.Q., *Qualitative interviewing.* Qualitative research and evaluation methods, 2002. **3**(1): p. 344-347.
35. Suri, H., *Purposeful sampling in qualitative research synthesis.* Qualitative research journal, 2011. **11**(2): p. 63-75.
36. Guest, G., A. Bunce, and L. Johnson, *How Many Interviews Are Enough?* Field Methods - FIELD METHOD, 2006. **18**: p. 59-82.
37. Saunders, B., et al., *Saturation in qualitative research: exploring its conceptualization and operationalization.* Quality & quantity, 2018. **52**(4): p. 1893-1907.
38. Elo, S. and H. Kyngäs, *The qualitative content analysis process.* Journal of advanced nursing, 2008. **62**(1): p. 107-115.
39. Kibiswa, N.K., *Directed qualitative content analysis (DQlCA): A tool for conflict analysis.* The Qualitative Report, 2019. **24**(8): p. 2059-2079.
40. Elo, S., et al., *Qualitative content analysis: A focus on trustworthiness.* SAGE open, 2014. **4**(1): p. 2158244014522633.
41. Ugwu, N.U. and B. de Kok, *Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria.* Reproductive Health, 2015. **12**(1): p. 70.
42. Ryding, E.L., K. Wijma, and B. Wijma, *Experiences of emergency cesarean section: A phenomenological study of 53 women.* Birth, 1998. **25**(4): p. 246-51.
43. Richard, F., S. Zongo, and F. Ouattara, *Fear, guilt, and debt: an exploration of women's experience and perception of cesarean birth in Burkina Faso, West Africa.* International journal of women's health, 2014. **6**: p. 469.
44. Ugwu, N.U. and B. de Kok, *Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria.* Reproductive health, 2015. **12**(1): p. 1-13.
45. Rishworth, A., E. Bisung, and I. Luginaah, *"It's Like a Disease": Women's perceptions of caesarean sections in Ghana's Upper West Region.* Women and birth, 2016. **29**(6): p. e119-e125.
46. Wigert, H., et al., *Women's experiences of fear of childbirth: a metasynthesis of qualitative studies.* International journal of qualitative studies on health and well-being, 2020. **15**(1): p. 1704484.

47. Organization, W.H., *Counselling for maternal and newborn health care: A handbook for building skills*2010: World Health Organization.

48. Rosen, H.E., et al., *Direct observation of respectful maternity care in five countries: a cross-sectional study of health facilities in East and Southern Africa.* BMC pregnancy and childbirth, 2015. **15**(1): p. 1-11.

49. Kinney, M.V., A. Boldosser-Boesch, and B. McCallon, *Quality, equity, and dignity for women and babies.* The Lancet, 2016. **388**(10056): p. 2066-2068.

Declaration of written informed, voluntary consent for an in-depth interview

The interviewer has clearly explained the purpose of the research, procedures, the risks and benefits, confidentiality issues, the rights participating, and the contact address for any queries. She/Heinformed me about the right of asking questions on issues that may not be clear and the right to withdraw from the study at any time, the right not to respond to any question that I do not want. The interviewer also informed me how the research team would maintain the confidentiality of data concerning both information about me and information that I share.I agree with my interview being audio-recorded.Therefore, I declare my willingness to sign consent and participate in this study with my initials as indicated below.

Signature of participant----------date----------/--------/----------

Signature of interviewer----------date----------/----------/--------

Signature of note-taker----------date----------/----------/--------

Interview guide for in-depth interviews with women who gave birth at Jugal and Hiwot Fana Specialized comprehensive Hospitals, Harar,2021.

Socio-demographic and women characteristics		Response
1	Code of Participant	----------
2	Age	----------years
3	**Residency**	Urban
		Rural
4	**Marital status**	Married
		Unmarried
		Diverse
5	**Ethnicity**	Oromo
		Amhara
		Gurage
6	**Working outside the home**	Employed
		Housewife
7	**Religion**	Muslim
		Orthodox
		Protestant
8	**Educational level**	Non-literate
		Literate
9	**Parity**	Nonporous
		Multiparous
10	**History of previous CS**	Yes
		No
11	**Previous stillbirth**	Yes
		No
11	**Previous neonatal death**	Yes
		No
12	**Having referral**	Yes
		No

	Interview Guide		Remark
1	Representations	Before the delivery, how did you imagine this experience?	For primipara women
2	Experience	What can you tell me about your experience? of this first delivery	For primipara women
	Experience	What can you tell me about your experience? of this delivery	For multipara women
	For all women		
3	Physiologic	How did you feel, physically and emotionally, when you found out you were to have our baby by vaginal delivery /CS	
		How did you feel, physically and emotionally, during the actual birth experience?	
4	Self-concept	What happened after the baby was born? How can you express your feeling about the overall birth process?	
5	Role function	How did you feel physically and emotionally during that time? What were your greatest needs during the entire experience?	
6	Interdependence	What could have been done, and by whom, to make this experience better for you?	
		What is your experience related to professional support and Perceived safety?	
		Can you please tell us about your family's support?	
7	Own capacity	How to explain your control during childbirth?	
		How much control did you feel you had during childbirth? (How do felt during labor and birth)	
8	Participation	How was your participation in the care you received	
9	Perceived safety	How secure did you feel during childbirth	
10	Landmark	What were the most important aspects of your delivery experience?	
11	Closing	Is there anything else you would like to add?	

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	7
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	7
Occupation	3	What was their occupation at the time of the study?	7
Gender	4	Was the researcher male or female?	7
Experience and training	5	What experience or training did the researcher have?	7
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	7
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	7
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	7
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	7
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	8
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	7 & 8
Sample size	12	How many participants were in the study?	8 (line 224-28
Non-participation	13	How many people refused to participate or dropped out? Reasons?	8
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	7 &8
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	8
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	8
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	9
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	No
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	9
Field notes	20	Were field notes made during and/or after the inter view or focus group?	9
Duration	21	What was the duration of the inter views or focus group?	9
Data saturation	22	Was data saturation discussed?	8 &9
Transcripts returned	23	Were transcripts returned to participants for comment and/or	No

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	9 (line 247-249)
Description of the coding tree	25	Did authors provide a description of the coding tree?	9
Derivation of themes	26	Were themes identified in advance or derived from the data?	9
Software	27	What software, if applicable, was used to manage the data?	9
Participant checking	28	Did participants provide feedback on the findings?	No
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	11-18
Data and findings consistent	30	Was there consistency between the data presented and the findings?	Yes
Clarity of major themes	31	Were major themes clearly presented in the findings?	Yes
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	No

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

BMJ Open

Women's hospital birth experiences in Harar, eastern Ethiopia: a qualitative study using Roy's Adaptation Model

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-055250.R2
Article Type:	Original research
Date Submitted by the Author:	09-Jan-2022
Complete List of Authors:	Tefera, Maleda; Haramaya University Assefa, Nega; Haramaya University Roba, Kedir; Haramaya University Gedefa, Letta; Haramaya University Brewis, Alex; Arizona State University Schuster, Roseanne; Arizona State University
Primary Subject Heading:	Nursing
Secondary Subject Heading:	Obstetrics and gynaecology, Health services research
Keywords:	Maternal medicine < OBSTETRICS, REPRODUCTIVE MEDICINE, Health & safety < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Women's hospital birth experiences in Harar, eastern Ethiopia: a qualitative study using Roy's Adaptation Model

Maleda Tefera[1], Nega Assefa [1], Kedir Teji Roba [1], Letta Gedefa [2]Alexandra Brewis[3] Roseanne C. Schuster[3]

Authors' Affiliation

[1]School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[2]School of Medicine, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

[3]Center for Global Health, School of Human Evolution & Social Change, Arizona State University

Authors' email addresses

Maleda Tefera: maledaifa.21@gmail.com

Nega Assefa: negaassefa@yahoo.com

Kedir Teji; Roba: kedir.t.roba@gmail.com

Letta Gedefa: lettagedda@gmail.com

Alexandra Brewis[3]: alex.brewis@asu.edu

Roseanne C. Schuster[3]: roseanne.schuster@asu.edu

Corresponding Author:

Maleda Tefera, School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia, Po. Box 235, Phone: +2519947792, maledaifa.21@gmail.com

Abstract

Objective: The aim of the study was to better understand the care factors that were associated with women's negative birth experiences in public hospitals in the Harari region of eastern Ethiopia.

Design: An exploratory phenomenological qualitative study design was used.

Setting: Two public hospitals (Hiwot Fana Specialized University Hospital and Jugal General Hospital).

Participants and methods: The study enrolled women who gave birth at the selected hospitals through purposive sampling. We conducted in-depth interviews with 38 women who gave birth to

singleton, full-term babies via vaginal delivery (47%' n=18) or Cesarean section (53%; n-=20) with no pregnancy-related complications. Interviews were audio-recorded and transcribed on the spot and the interviews were analyzed using a deductive content analysis approach. Data were analyzed using the four components of Roy's Adaptation Model (RAM) as a guiding framework of women's experiences: physiological, self-concept, role and function, and interdependence.

Results: Various behaviors were identified: under physiological mode, common behaviors identified included labor pain, fatigue, surgical site pain, and anesthesia-related complication. The women's major problems in self-concept mode were concern for future pregnancy, lack of privacy, newborn health status, relationship with health care providers, and lack of family support. Due to the prolonged hospital stay and surgical site pain, the women who were unable to care for themselves, their newborn babies, and their families adapted poorly to role function mode. Finally, women who had no family support and who got less attention from health care providers reported ineffective adaption for interdependent mode.

Conclusions: Application of RAM principles could be used to improve care for Ethiopian women, providing an intervention framework that can gauge and respond to interacting factors that can make women vulnerable to negative birth experiences.

Strengths and limitations of this study

- The theory-driven design using Roy's Adaptation Model (RAM) provided a strong, conceptually defined framework for our analysis.
- Some concepts from RAM (e.g., stimuli system, adaptation level, innate and acquired coping mechanisms) and other RAM tenets (e.g., cognator and regulator mechanisms) were not used because these were based in quantitative assessments (e.g., Likert scales).
- By focusing on the four modes selected, we comprehensively explored women's birth experiences.
- The in-depth interviews were conducted early in the post-partum period (1-2 days after birth), as most of the participants' homes were far from hospital; this meant that follow-up to discern if perceptions changed after women left hospital was not possible.
- The timing of the interviews may have decreased recall bias of the birth experience, but also meant that women may not have been able to draw on their entire post-partum experience.

Keywords: Roy's Adaptation Model; Birth experience; Vaginal delivery; Cesarean section; Ethiopia.

Introduction

Giving birth is potentially (but not always) a joyful event in a woman's life,(1) ideally enhancing a woman's self-confidence and creating attachment to the newborn.(2) A positive birth experience is generally characterized by a sense of autonomy, choice, access to accurate information, and feeling respected.(3) This experience can be enhanced through positive relationships with health professionals(4). Fear, excessive pain, a perceived lack of support, discomfort, and unfavorable outcomes characterize a negative birth experience. (5, 6) The 2018 WHO guidelines on intrapartum care recommended that, in addition to safe labor and childbirth, women's psychological and emotional needs be met in order for women to feel safe, comfortable, and positive about the childbearing experience. (7) This is due, in part, to the fact that post-partum maternal emotional wellbeing is influenced by birth experiences(8), and poor post-partum mental illness symptoms – often measured as depression - negatively impact health-seeking (e.g., child immunizations,(9)) caregiver behaviors (e.g., breastfeeding(10) and early childhood development [e.g., underweight and stunting.(11)]).

According to studies from higher income countries, a positive birth experience results from family support, the relationship with health care providers, maintaining privacy in terms of body exposure and the number of delivery attendants, and the ability to perform as a mother. (12, 13). There are few studies from Africa, but one from Ugandan also showed that improper care, poor communication, and compromised privacy contributed to the mothers' negative hospital-based childbirth experiences.(14) This is reportedly a common reason for home delivery in African countries. (15-18)

Over 70% of Ethiopian women give birth outside of the healthcare system (CSA Ethiopia 2016). Mostly this is explained as based in various practical reasons (e.g., geographic, economic). Localized reports however tell a very different story, pointing to emotional reasons, and in particular concerns about how health care professionals will treat them. A recent qualitative focus group-based study in Northwest Ethiopia discovered that the perception of "disrespectful treatment" was a major reason many women avoided giving birth in hospitals (19). Concerns about the low quality of service and a lack of respectful and supportive care were most frequently expressed by women who had

previously given birth in hospitals, which was part of the rationale for this study (i.e., based on their own experiences). Other focus group- and interview-based studies similarly suggested that mistreatment by staff is a factor. (20, 21) One study in Bahia Dar, based on surveys of 284 women, also noted that almost half of women reported "abuse" in their experiences of hospital births. (22) Another survey of 379 post-partum women in the Amhara region, 74% reported "mistreatment," and 72% noted poor rapport with healthcare professionals in hospitals. (23)

The study was designed with a care framework – Roy's Adaptation Model (RAM) – widely used in the field of Nursing and used here to organize, theorize, interpret, and suggest ways to improve Ethiopian women's hospital-based birth experiences. We selected this model because it is part of the suite of existing models for women-centered care, and thus it provides a means bridge examining women's experiences and considering how to improve nursing and other supportive care within health facilities. In addition, RAM allows us to identify where and how women's varied birth experiences fail to be "adaptive." "Adaptation" here refers to the successful interaction between a person (the new mother) and contextual stimuli (including hospital staff). To the best of our knowledge, there is no study in the Ethiopian context that explores women's birth experiences based on their mode of birth using RAM. Thus, this qualitative study uses a novel analytic approach to consider Ethiopian women's hospital birth experiences, focusing on women's perceptions of processes around birth that deviate from what they expect as the quality of care.

RAM conceptualizes a woman's positive or negative birth experience as the outcome of process, involving care by others. In this model, good nursing must first address the focal stimuli of a medical event (here: the birth experience, whether vaginal or CS) but also take into account contextual stimuli. This includes factors such a socio-demographic knowledge, a relationship with a health provider, the hospital setting, newborn status, the number of caregivers, and the experience of health professionals, all of which influence the response to the focal stimulus directly to adaptation. Residual stimuli deal with women perceptual or attitude toward mode of birth. The regulator subsystem of RAM, which deals with neurological, chemical, and hormonal responses was not used in this study. Perceptual/information processing, learning, judgment, and emotion are all part of the cognator (coping) subsystem. This was represented by the perception of the birth experience, which includes feelings or emotions about labor or perioperative procedures, delivery process, and intervention during delivery, and initial contact with the infant.(24) A negative birth experience is interpreted as "inadequate adaptation" in the context of RAM.

Using the RAM, women's responses to stimuli are organized in four main modes of adaptation: physiological, self-concept role function, and interdependence. The physiological model encompasses the physical and chemical processes involved in human function. Fatigue, pain, surgical wound, need for sufficient healing period and decreased mobility considered as the physiological mode in this study. The self-concept group identity mode is the emotional aspect, including feelings about oneself and the perception of others' reactions, whereas the role function mode deals with social integrity by concentrating on the performance of activities related to the various roles one passes during life. (25) For women who gave birth, the role function was to perform as the mother and a wife after exposure to the stimuli (mode of delivery). The interdependence model emphasizes satisfying relationships between the individual and significant others.(25) In our case, the interdependence mode included a partner or family support, interaction with health professionals, social support, and contact with the newborn, and the like.

In this study, we use qualitative data collected during interviews with 38 women following their hospital births to identify how each mode of RAM was experienced; the analysis used those categories as the interpretive framework. The analytic emphasis was on the distinctions of a focal stimuli (vaginal versus CS) and how that differently shaped women's understandings and meanings of their birth experience, using a phenomenological approach that seeks to create a comprehensive, accurate, clear, and articulate description and understanding of a specific human experience or experiential moment.(26)

Methods

The methods are built on the consolidated criteria for reporting qualitative research (COREQ) framework, including 32 items divided into three domains: research team and reflexivity, study design, and data analysis and reporting. The checklist aids in reporting essential aspects of the research team, study methods, study context, findings, analysis, and interpretations.

Research team and reflexivity

The research team included Ethiopian national public health professionals, nurses, and social scientists with PhDs in the aforementioned fields and first-language fluency in the languages used by participants. Academic and researcher are the occupations of all researchers. The interview and analytic team were all women, each with long-term experience in the study area. Generally, patients

were extremely comfortable with the interviewers. Prior to the start of the study, there was no interaction between the researchers and the participants, meaning they had no existing relationships.

Study design and setting

A phenomenological approach using qualitative study design was employed, based on interviews with women who gave birth at two public hospitals in eastern Ethiopia from April to May 2021.

The in-depth interviews were conducted at public hospitals in the Harari Region. There are three government hospitals and one private hospital in the study area. This study was restricted to two public hospitals: Hiwot Fana Specialized University Hospital (HFSUH) and Jugal General Hospital. HFSUH is one of the oldest hospitals in Harar, established during the Italian occupation (1928-1933). In the recent decades, the hospital has become a teaching facility for health sciences students at Haramaya University. It has a total of 233 beds, with an average of 11,957 admissions per year. (27). The maternity unit offers about 5808 deliveries annually and provides 830 caesarian deliveries annually (28). Jugal General Hospital was built in 1957 by King Haile Selassie I in memory of his father. The maternity unit has six prenatal beds, two delivery couches, one newborn resuscitation bed, and eight postnatal beds. In this unit, on average, 3000 deliveries are conducted annually. (29)

Study population and sampling

Our study was based in the Harari region, Ethiopia, where the birth rate was 20.3 births per 1000 in 2013.(30) The average number of children per woman in the region is estimated at four. (31) Notably, women undergoing vaginal delivery in this study were not offered pain relief, as is typical in most parts of Ethiopia. In addition, the hospitals' protocol explicitly prohibits the administration of epidurals to laboring mothers. This is an essential contextual distinction, relative to our analysis, from other studies.(32, 33)

During the study period, approximately 797 women delivered babies in these two hospitals. Early COVID-19 restrictions were in place, so that at HFSUH, no family members were allowed to attend the birth. However, at Jugal General Hospital there were no restrictions on family attendance, so members were typically present. Eligibility criteria for study participants were women who gave birth at these study hospitals, had no pregnancy-related complications, carried singleton baby to term, delivered vaginally or by CS, and spoke one of the two common local languages. In addition, women with medically severe birth outcomes (e.g., stillbirth, preterm, or congenital malformation) or who

were admitted for more than one week (again indicating severe birth or post-partum complications) were excluded. To sample based on the delivery type and potentially significant differences in backgrounds, women were categorized into two groups based on the mode of delivery: vaginal and CS.

Stratified purposeful sampling was then employed to select participants, illustrating the variation in the experiences of these particular subgroups, and facilitate comparisons. Stratified purposeful sampling aims to capture major variations, even if a common thematic core emerges from the analysis. (34) It is also helpful for investigating variations in the manifestation of a phenomenon as any key factor associated with the phenomenon changes. (35)

Recruitment was done at the maternity ward, and study information, including voluntary participation, the study's aim, and methods, were explained. Finally, participants gave their written consent to join the study, with oversight by the Haramaya University Institutional Review Board.

Data collection

The majority of the women approached accepted the invitation to participate, but three women declined to participate in the study. We interviewed 18 women who had vaginal deliveries and 20 women who had CS, exceeding the commonly accepted minimum number of twelve interviews needed to reach thematic saturation. (36). Taking into account the stratification of women based on the mode of birth, residency, and parity, we included 38 women to reach the saturation level.

Interviews took place 1-2 days after the delivery. Interviews continued until sub-group saturation for both vaginal and CS delivery was reached. Saturation involves sampling until no new themes are obtained so that further interviews would yield redundant information.(37)

The semi-structured interview guide was organized around RAM and included open-ended questions related to the four domains of RAM (physiological, self-concept, role and function, and interdependence) (Supplemental Material-1). In addition, the interview guide was pre-tested with five participants at another Haramaya hospital (not included in the study), and the interview guide was revised accordingly to elicit detailed responses relevant to the study objectives.

The trained facilitators conducted in-depth interviews using the semi-structured protocol, accompanied by a dedicated note-taker in Amharic or Afan Oromo, per the woman's preference, for 60-90 minutes. Emphasis was placed on confidentiality to create a comfortable environment for the participants to share more intimate details and provide a comprehensive description of their experiences. Prompts such as "tell me more," "what happened next," and" please elaborate" were

consistently used to elicit more detail. The note taker additionally recorded observations of the women's non-verbal reactions such as laughter, crying, eye contact, facial expressions, and signs of fear and discomfort, later aligned with the interview transcript.

Data processing and analysis

The audiotapes were transcribed verbatim in Afan Oromo or Amharic and checked the same day as the interviews by the principal investigator. The interviewer and note-taker then translated the transcripts into English. The principal investigator reviewed the translation alongside the contextual notes taken during the interview to represent the context accurately. The translated files were transferred in plain text format to Open Code 4.02 software and coded independently by two researchers, with the codes compared to make decisions around discrepancies. Because the data collection and analysis were done concurrently, the following interview was conducted after the previous one was completed. The interviewers read the entire text of each interview in English language and created an interpretive summary. These interpretive summaries were inserted into the final products, as a personal experience narrative.

A content analysis approach using deductively derived codes was then used to analyze transcripts. Researchers reviewed the data using existing theories and concepts in a deductive approach, and these concepts were often incorporated into the initial codes as domains.(38, 39) Initial codes were generated to identify the data features in line with the research questions, and the consistency of codes between the two coders was checked. After reaching on a consensus about coding, the codes were applied to all subsequent transcripts.

The four RAM modes were thus identified as the prominent domains before accessing the data. These codes were systematically applied to the transcripts so that two reviewers tagged all statements relevant to the research question and RAM, and differences were resolved by discussion within the research team. The research team then reviewed all the excerpts tagged under each code and analyzed the narrative experiences of each group of women who delivered vaginally or by CS according to RAM, substantiating with quotations.

Data quality control

We checked quality control on an ongoing basis, using the four common criteria of credibility, dependability, conformability, and transferability. (40) To address credibility, the interviewer spent more time building rapport, which aid to get in-depth information and summarizing the participants'

responses after finishing the interview and then discussing with peers - the lead researcher and senior researchers –both to ensure alignment with the purposes, methods, and procedures and to achieve persistent observation or identify those characteristics and elements that are most relevant to the problem or issue under study, on which you will focus in detail. (40). In addition, we triangulated the participants in terms of educational status, residency, and parity to get compressive experiences.

Regarding dependability and conformability, the same protocol was applied, and the process was documented; the same interview guide was used for each participant, transcripts were matched with the audio records to confirm the consistency, and findings were supported with quotes from transcripts. To ensure transferability, the sampling techniques, inclusion criteria, and the main characteristics of the participants were all clearly stated. In addition, field notes and detailed notes on nonverbal reactions of participants during the interview were used to create a thick description that speaks to transferability.

Patient and public involvement

No patient or the public involvement.

Results

The highest proportions of the 38 participants were in the age range of 15-24 (n=18, 47.3%), married (n=38, 100%), Muslim by religion (n=31, 81.5%), of Oromo ethnicity (n=29, 76.3%), non-literate (n=20, 52.6%), and identified their occupations as housewives (n=27, 71%) (Table 1). Nearly three-quarters (n=27, 71%) of women were multiparous, 18.6% (n=7) had a previous CS birth, and 13% (n=5) had a history of stillbirth. The majority (n=35, 92%) of the women were referred to the hospital by another health facility (private clinics, district hospitals, and health centers). (Table 1). For this birth, 47.4% (n=18) delivered vaginally and 52.6% (n=20) delivered by CS.

The focus of this analysis was RAM adaptation modes. Women's adaptation behavior differed depending on their characteristics such as parity, educational level, and residency. It is also influenced by the mode of delivery. The four adaptive types of RAMs are used to categorize the participants' behaviors. Fatigue pain, activity intolerance, and anesthesia effect were the common behaviors identified under the physiological mode. For self-concept mode, loss of self-confidence, the concern for impact on future pregnancy and lack of privacy were the most frequent codes. Self and family care deficit were identified under role and function mode. Finally, family support and relation with health care providers were tagged under interdependent mode (Table 2).

Physiological mode

The physiological mode of the RAM, as noted above, encompasses the physical and chemical processes involved in human function, during and following the birth process, fatigue, pain, surgical wound, and decreased mobility the dominant physiological problems. Adapting to physiological mode was reported as more difficult for women who gave birth via emergency CS because they experienced labor pain as well as pain from the surgical procedure. These women described the labor pain as uncontrollable and mentioned the complexities of the CS procedure. Its after-effects include loss of body control, numbness, prolonged lying on the back, and feeling chilled, all reported as negative experiences. Besides, the pain around the surgical site is intense and intolerant without anti-pain.

"I was referred from the health center [to the hospital] after six hours of labor. The labor pain was difficult to describe; the contractions were frequent with pushing down pain, but the baby did not engage. The doctor decided to perform a cesarean section. The feeling in the recovery room after the operation was horrible. I could not turn to the side. I was in excruciating pain all over my body, and to feed the breast for the baby was very difficult." [25-year-old woman, first-time mother, CS delivery]

Some women preferred the elective Cesarean section (CS before the onset of labor), and they showed adaptive behavior to physiological mode. On the other hand, those who underwent emergency CS had ineffective adaption for this mode. The reasons for choosing elective CS were fear of labor pain, the previous bad experience of vaginal birth, and having previous CS.

"My previous birth experience was not positive, and I waited for a normal birth for more than 16 hours before giving birth through CS. Not to repeat this bad experience, I would prefer elective CS for my current pregnancy. However, when I compared this birth to the previous one, I felt better because the pain is only from the surgical site, and I did not experience labor pain." [37-year-old woman, multiparous mother, CS delivery]

Most (2/3) women in the urban who had previously had CS preferred elective CS and were unwilling to try a vaginal birth. However, even those who agreed to try vaginal birth after CS lacked the patience to wait for labor to progress; as a result, they requested CS.

"……I had previous CS, and the midwife counseled me to have a vaginal birth. My family also advised me to try a vaginal birth. I agreed to give birth vaginally, but the pain was too much for me; I couldn't stand the pain and was exhausted, so I requested CS." [30-year-old woman, multiparous mother, CS delivery]

However, the women from the rural area preferred the natural birth mode; even they initially refused CS when medically indicated serious reason.

"….. The baby was buttocks down [rather than head down], and they advised me to have a cesarean section, which I refused. We reached an agreement after a lengthy discussion with my family, but I was still hesitant to give birth via CS because it had significant consequences" [26-year-old woman, multiparous mother, CS delivery]

Those women had poor adaptation to physiological mode. Staying for more days at the hospital, surgical wound, and activity intolerance were the main reasons for the negative birth experience

"I was very active in doing things during my previous delivery because I had a normal delivery, but now I had CS. I can't move, can't even go to the toilet, and can't breastfeed or care for my baby because of surgical wound pain." [28-year-old woman, multiparous mother, CS delivery]

According to women who gave birth vaginally, labor pain was incomparable, taking their breath away and making them unable to speak. However, the pain was mostly gone soon after birth. But the body became exhausted.

"The labor began at night with back pain, and by the middle of the night, it had become severe and uncontrollable. We arrived at the hospital around 2 a.m., but I gave birth around 10 a.m. Oh, the pain was difficult to describe, but I had forgotten everything as soon as I gave birth. I couldn't even speak after giving birth because I was so exhausted." [24-year-old woman, multiparous mother, vaginal delivery]

This experience varied depending on the characteristics of the women; women from rural areas accepted labor pain as a necessary part of motherhood and controlled the pain with patience. These

women agreed on the severity of the pain, but simultaneously accepted it as a natural event awarded by Allah. Every woman should go through this agony; giving birth through elective CS is an attempt to misdirect Allah's work.

Pain and exhaustion in primiparous women, on the other hand, was unexpected and stressful. The first-time women explained that labor pain was worse than anything they could have imagined; it lasted a long time. During the actual delivery, the body becomes numb and exhausted, making pushing the fetus extremely difficult.

"It's difficult to describe the pain; I thought I was going to die. When the contraction came, I squeezed the hand of the medical student who was attending me, and he put my hand on the bed and told me to handle the edge of the bed. However, when the contraction came again, I began to squeeze his hand because I couldn't control the pain. Finally, my body became exhausted during the actual birth, and I could not push the baby. I requested an operation, but they refused. I gave birth with their assistance." [22-year-old woman, first-time mother, vaginal delivery]

Self-concept mode

Women in this study did not feel confident nor in control. Almost all (15/20) women who delivered by CS, particularly those who gave birth at HFSUH, stated that they were exhausted by being bombarded with frequent and repetitive questions from students in particular. The women stated that procedures like vaginal examinations and catheter insertion were performed in front of many students and staff members without their consent.

"Students kept approaching me with the same question. This was tedious because I was in pain and even cried when I was overwhelmed. Furthermore, the examination was performed in front of many students, which was extremely humiliating. If they maintain privacy, the body can relax, and they can do anything they want." [28-year-old woman, multiparous mother, CS delivery]

Adaptive self-concept also depended on having support, unexpected changes to the planned mode of delivery, and newborn health.

"I assumed I'd be able to give birth naturally. However, the health professional informed me that I would be unable to give birth naturally due to two previous cesarean sections. This was concerning news that raised my blood pressure." [26-year-old woman, multiparous mother, CS delivery]

"The labor started at the workplace (at the market), I called my neighbor, and he took me to the hospital. He told them to support me because I have no family. My husband is looking for work in Adama, I have two children, 12 and 4 years old. The delivery time is not long, but I cannot push the baby. I gave birth with the help of the device. The device traumatized the baby's head and was sent to the neonatal intensive care unit (NICU). I'm scared and concerned about my baby's health. My two children also require my assistance, but I am here because of the baby. I'm anxious and depressed as a result of all of this." [34-year-old woman, multiparous mother, vaginal delivery]

Women from rural areas fared better in terms of adaptation than urban and more educated women. They more readily accepted the conditions, with little or no help from family or health care providers. The multiparous women who came from the rural areas and had a forceps delivery explained that one should accept whatever life offers because Allah's will control everything.

"I finished the labor at home. As soon as I arrived at the hospital, they took me to the delivery bed, the baby was in trouble, and they assisted me with the device. However, he did not cry well after the baby was born and injured his head, transferring him to the NICU. But I am not stressed because this is Allah's job; if he belongs to me, he will cure if Allah creates for him, I will get him at heaven." [22-year-old woman, multiparous mother, vaginal delivery]

The perception of childbirth, hospital environment, and relationship with the health care provider all influenced primiparous women's adaptation to self-concept behavior.

"I was concerned because my friend's birth experience had been traumatic; she had labored for more than 20 hours, and there were rumors about this hospital such as, if you go here, you will be on the doll for students, so I was afraid when I was referred here, but the treatment they provided me disproved the rumors." [28-year-old woman, first-time mother, vaginal delivery]

Women who gave birth naturally had effective self-concept adaptation, whereas those with an emergency CS had poor self-concept adaptation. They explained that childbirth pain is excruciating, but tolerating it helps build self-confidence.

"I labored for 15 hours, the contraction pain is severe especially nearest birth, but it went immediately after birth, I'm healthy, and I said yes, I did it." 'I'm glad I made it through the difficult period." [20-year-old woman, multiparous mother, vaginal delivery]

Women who gave birth by emergency CS, on the other hand, stated that in most cases, CS is indicated when the baby or the mother is in danger, but surgical procedure introduces additional risks and causes a great deal of anger and stress.

"...after 4-hour labor, the doctor advised me to have my baby delivered via Cesarean section because [the baby] was in distress; this was an unwelcome new experience for me. Furthermore, I became anxious and even cried and asked them to tell my husband and family because I feared I would die. So, before the operation, I decided to talk with my family and entrust my children to my family members [for care if do not survive the procedure]." [35-year-old woman, multiparous mother, CS delivery]

Several women find the environment uncomfortable even after giving birth, and remaining in the hospital for several days does not provide comfort.

"I don't want to stay here; I want to go home and celebrate my birth with my family because you don't have autonomy. You don't get what you want, and you don't have privacy here. Furthermore, my family suffers alongside me because there is no place for relatives to rest at night here; they slept outside on the ground, so staying here [22-year-old woman, first-time mother, CS delivery]

Nearly all (13 of 14) Muslim women were dissatisfied with having their children delivered via CS. This was because they believed that having CS in the current pregnancy would affect future pregnancies and limit their ability to have multiple children, resulting in divorce or their husband bringing a second wife into the household. As a result, Muslim women refused CS delivery even when indicated:
".... refused CS and told them I'd rather die than give birth through surgery because if I gave birth to my first child via CS, the next would also be via CS, and I can't have more than two children via this

mode, so my husband looked for another wife for getting more children." [18-year-old woman, first-time mother, vaginal delivery]

Those who gave birth through CS after receiving reassurance remained concerned about the future. Because their partners and families shared the same concerns, these women were not emotionally supported or reassured by their partners, families, or society. This limited number of children due to CS delivery was the primary cause of marital dissatisfaction, loss of self-confidence, and lack of trust in the health system.

"...When they told me that I could only be delivered through CS and that this would be my last CS because I had two previous CS. I was saddened, and my blood pressure rose because my husband and his family needed many children, which also encouraged the community and religious leaders..." [34-year-old woman, multiparous mother, CS delivery]

In contrast, women who gave birth by elective CS – essentially per-arranging the mode of delivery - had a positive self-concept, which they convinced themselves of during antenatal care visits.

"During my antenatal care visit, I decided on my mode of delivery, and when the time came to deliver, I was not afraid at all." It is common to feel some frustration when entering the operating room, but this dissipates once you communicate with the teams." [28-year-old woman, multiparous mother, CS delivery]

Role function mode

Role function mode deals with social integrity by concentrating on activities related to the various roles one passes during life.(25) Most central role function for women who gave birth was to perform as the mother and a wife after delivery. The women delivered via CS report that breastfeeding and caring for the baby is difficult due to pressure from the incision site and associated uterine pains. On top of this, first-time women face more significant difficulties because of their lack of experience.

"..... I tried to breastfeed when the baby was crying but couldn't, due to the pain at the incision site and a lack of knowledge about treating the baby. Furthermore, the baby couldn't hold to the breast. She tried to hold but couldn't. At the time, she was angry and crying a lot, which made me stressed,

so she started bottle-feeding until I recovered from the pain." [24-year-old woman, first-time mother, CS delivery]

In addition, the length of hospital stays influenced adaption concerning role and function mode for women who gave birth through emergency CS, especially those from rural areas. They clarified that staying in the hospital for several days is not suitable because they have children who need their care at home and are concerned about the financial implications of a prolonged hospital stay. Therefore, many women are not comfortable staying in the hospital for a long time.

"... Some women with CS were discharged after three days, but I have been here for five days because I am in treatment. I prefer to return home after delivery, but I had to stay here for five days due to this CS, and I have four children at home who require my attention, and we have spent all of the money we have, so we want to go home." [35-year-old woman, multiparous mother, CS delivery]

Adaptive behavior to role and function mode was observed in women who gave birth vaginally, and they reported being able to transition into caring for the baby. After delivery, the health provider assisted in helping position the mother and baby for feeding so that once the baby began to suckle at the breast, breastfeeding was successful. Some first-time mothers clarified that while meeting their child for the first time was a wonderful experience, feeding and caring for their infant's extensive needs could be challenging for a while.

Interdependence mode

The interdependence mode emphasizes satisfying relationships between the individual and significant others. (25) In our case, interdependence mode included partner or family support, interaction with health professionals, social support, and contact with the newborn. Due to COVID 19 restrictions, all women who gave birth at HFSUH were distressed that that family access to the labor and maternity ward was limited, so they received no visits following delivery. Particularly for women who gave birth through CS, this meant women were unable to access physical and emotional support they wanted from family.

"...I had a difficult time after giving birth; caring for the baby is difficult due to pain in the incision site; I am unable to move, sit, or turn to the side. family support is critical in this situation, but I didn't get this chance." [32-year-old woman, multiparous mother, CS delivery]

Most (18 of 20) women who gave birth at HFSUH appreciated the skill and kindness of their health professionals. However, the number of health care workers was limited, especially at night, so women could not receive this critical help from the hospital staff, further complicating their experience. This was when family support was most needed but not available.

"No one is allowed to access the delivery and postnatal wards because of COVID-19. It is more challenging to breastfeed or care for the infant, so having someone in the family relieves stress." [23-year-old woman, first-time mother, CS delivery]

The women explained that even getting food and clothes was very difficult, mainly for those who had no mobile phone to coordinate:

"...It was not easy to locate health professionals when you needed their services. To get assistance for a problem, you must wait until they return. You wouldn't be able to get meals on time if you didn't have a mobile phone, and you wouldn't be able to change clothes. The phone is your only means of communication with your relatives". [28-year-old woman, multiparous mother, CS delivery]

The women from Jugal General Hospital, on the other hand, had family support. However, some raised the issue of safety, stating that more than three family members could enter the ward for one woman without COVID-19 protection, increasing the risk of infection, and they rather wished that the hospital would have limited visitors or provided better protection.

"...We are at high risk for COVID-19, but hospital administration is reluctant against COVID prevention. The visitors and health providers did not use COVID-19 protection; the hospital must focus on problem prevention. Imagine if a mother is infected, how many people can be affected at once. As you can see, there are more than eight beds in one room and more than three people on each bed so that you can estimate the scope of the problem." [25-year-old woman, first-time mother, vaginal delivery]

Some (5/38) women from both hospitals explained that refusing advice from the health professionals resulted in verbal and physical abuse:

"I had been in labor for 20 hours, and the door of my womb did not open as expected. The doctors advised me to give birth via cesarean section, but I refused, and the health professionals who followed me became irritated and aggressive. I am still resisting the operation; he tried to take me by force, but I screamed and cried, then he hit me with a card and left the room. Finally, other health professionals came to see me, and he confirmed that the baby's head is coming out, so I gave birth vaginally with stitches". [18-year-old woman, first-time mother, vaginal delivery]

Furthermore, some women stated that lack of adequate and timely procedures beginning with admission to post-partum care resulted in poor quality of care for them and their babies, ranging from negligence to severe complications:

"..... I went to the hospital at night, and the midwife told me to go home because the cervix was not open, then I returned the following day. The midwife told me the same thing again, but this time I did not return home because I had a baby on the way, and my family begged her to help me, but she insulted them. Finally, the baby's head emerged, and other medical personnel escorted me to the delivery bed with dignity". [28-year-old woman, multiparous mother, vaginal delivery]

Some women also explained that the health professionals only care for the woman until she gives birth so that the critical care given post-partum is neglected:

"I gave birth through vaginal delivery at night, but there was still no health professional who visited us, even though I was in severe pain after birth. My partner went to the delivery unit and told them to check me, but they didn't come. Finally, I was fed up with waiting for them, felt angry, and tried to leave the hospital without permission, and on my way, I felt dizzy and fell, and I went back to my bed with the help of others." [34-year-old woman, multiparous mother, vaginal delivery]

Discussion

Previous studies in Africa suggest women's generally negative perceptions of hospital birth experiences is a reason they avoid them. In considering these study results and their implications for maternity care, we focus on two key points: How do women interpret negatively or positively the role of nurses and other birth attendants based on the type of delivery? Furthermore, how does family attendance matter to women's negative perceptions of their own hospital births?

Based on our analysis of four components of RAM; physiological, self-concept, role and function, and interdependence mode, we find that women who give birth vaginally reported effective physiological adaptation. In contrast, women who gave birth via CS struggled with surgical site pain and after-effects of anesthesia. Similarly, women who had CS had less adaptation to self-concept, role and function, and interdependence related to anxiety about the surgical procedure, concern about limitations on future pregnancies, inability to care for themselves and their babies, and a lack of family and social support. In addition, these were associated with more negative birth experiences, as identified by women through interviews.

Our findings show that the mode of delivery, health professional and family support, newborn health status, previous experience, and changing of a plan in delivery all impact women's birth experience in this Ethiopian case. The labor pain itself was described as a complex phenomenon that resulted in a sense of confidence and accomplishment for women who delivered vaginally. One particular feature of this study context is that vaginal delivery is – by hospital policy -- conducted without epidural. However, most women who delivered vaginally (16 of 18) agreed that labor pain is a "normal" part of the childbirth process, and those who gave birth vaginally thus adapted well. This finding is consistent with other studies that have found a link between the social constructions of vaginal delivery as a signal of positive womanhood for women and defines it as a normal, natural, and preferred mode of delivery. Thus, vaginal delivery appears to be a symbol of womanhood. (12, 18, 41) In contrast, the emergency CS was associated with negative feelings, as those women experienced severe labor pain and pain from surgical inclusion after birth. The women had ineffective adaptation to physiological mode, which resulted in a negative birth experience; this finding was consistent with other studies.(18, 42)

Fear of surgery, a lack of family support, and concern about future pregnancies were the primary causes of infective adaptation to self-concept. Almost all (13 of 14) Muslim participants' mistrusted CS delivery, mainly because it was perceived to inhibit having more children because hospital policy does not allow any woman to have more than three CS deliveries. Other African studies have shown similar results: CS delivery is associated with stress and anxiety due to fear of pain and

death and religious and socio-cultural concerns related to its long and short-term repercussions. (43-45)

The majority of study participants failed to receive what they perceived as family support, which using RAM was the primary cause of women's ineffective adaptive behavior to self-concept, resulting in a negative birth experience. This finding is consistent with other studies that found that women who received adequate healthcare provider and spouse support had a positive childbirth experience. (13) Adaptive self-concept mode was also influenced by such nursing actions as ensuring privacy and explaining the procedure before the performance. Most (32 of 38) women stated that examinations were done in front of many students, without adequate warning, and so were humiliating. This has been described in other studies as a factor in negative birth experiences. (12) Concerning role and function mode, giving birth via vaginal delivery increased the women's self-efficacy and enhanced their sense of motherhood. Women who delivered via CS, on the other hand, faced numerous challenges due to pain at the surgical site. They were unable to sit, move, or easily breastfeed. Those without additional family support struggled most. Furthermore, the longer admission times related to CS were distressing in itself because this cost more and meant women were further burdened by struggling to pay; this finding that the economics of CS is part of the emotional distress it causes is congruent with other studies.(15-17)

However, in many African hospitals, the family is never permitted to participate in birth experiences. This is one reason that reportedly women choose to give birth at home (15-18). In this specific case, we are able to draw on the comparison of two hospitals with different visiting policies to consider how this may matter to women's experiences.

This study revealed that having support from both family and healthcare providers played a significant role in having a positive birth experience. Ineffective interdependence mode was observed more in women who get birth via CS, particularly those who gave birth at HFSUH, where family entry was more restricted. This finding is congruent with other studies in Sub-Saharan countries, which revealed that the participants valued a birthing environment that allows for family support.

A recent meta-synthesis of ethnographic studies of women's fears around childbirth by Wigert and colleagues (46) included studies from Australia, Iran, Norway, Sweden, and the U.S. Part of the bitterness and regret after imperfect birth experiences was directed toward birth attendants such as nurses and midwives; by the same token, women's positive experiences based on empathy were also expressed as part of the care from attendants. During labor and delivery, women may be helped by providing proper care, timely information, warmth, encouragement, and reassurance. (47). Our

findings echo this general principle: the worst birth experiences were credited to the failings of hospital birth attendants. Some participants reported being verbally and physically abused. Unfortunately, this finding is not unique to our study and is reported elsewhere (48). For example, a study in Uganda reported that physical and psychosocial support provided comfort, consolation, and encouragement to the mothers, while improper care, poor communication, and compromised privacy contributed to the mothers' negative childbirth experiences (14). Furthermore, the indication that caring for women post-partum is less important now that she is not carrying her child is distressing and aligns with calls for quality, respectful, and dignified care for women(49)

For Ethiopian women interviewed for this study, CS, in particular, worsened all aspects of adaptation during the birth process as defined by the RAM. Thus, applying RAM principles to nursing will most especially benefit Ethiopian women undergoing CS, providing a framework to consider all the interacting factors that make them vulnerable to negative experiences. In addition, the use of such models already recognizable to nurses and other health care professionals, bolstered by empirical evidence such as this study that indicates how and why care must be improved, will make a case for change more accessible.

Our study has several strengths but also some limitations. Notably, the theory-driven design using RAM provided a strong, conceptually defined framework for our analysis. However, some concepts from RAM (e.g., stimuli system, adaptation level, innate and acquired coping mechanisms) and other RAM tenets (e.g., cognator and regulator mechanisms) were not used because these were based in quantitative assessments (e.g., Likert scales). But by focusing on the four modes selected, we comprehensively explored women's birth experiences. The in-depth interviews were conducted early in the post-partum period (1-2 days after birth), as most of the participants' homes were far from hospital. This meant that follow-up to discern if perceptions changed after women left hospital was not possible. Additionally, the timing of the interviews may have decreased recall bias of the birth experience, but also meant that women may not have been able to draw on their entire post-partum experience.

Conclusion

Women's birth experiences were explored using RAM. Surgical site pain, anesthesia-related complications, lack of privacy, the concern of future pregnancy, inability to care for self and family, poor family support, and receiving less attention from health care providers were the most common reasons for ineffective RAM adaption leads to a negative birth experience. Application of RAM

principles could be used to improve care for Ethiopian women, providing an intervention framework that can gauge and respond to interacting factors that can make women vulnerable to negative birth experiences.

Contributors

The study's guarantor was MT. MT, NA, KT, and LD designed the study, participated in data collection and analysis, and wrote the manuscript, while AB and RC performed the analysis and reviewed the manuscript. The final manuscript was read and approved by all authors.

Funding

Funded internally by Haramaya University (Award/Grant number NA).

Competing interests

The authors declare that they have no competing interests.

Acknowledgments

We acknowledge Haramaya University's College of Health and Medical Sciences for funding. Our special gratitude goes to our interviewers for their unreserved commitment and support.

Ethics approval and participant consent

Ethical clearance was obtained from the Institutional Health Research Ethical Review Committee (Ref. No. IHRERC/107/2020) at the College of Health and Medical Science, Haramaya University. The purpose, procedure and duration, possible risks, and benefits of the study were explained to participants in the local language and individual informed, voluntary, written, and signed consent was obtained from each participant.

Patient consent for publication

Not required.

Data availability statement

All data from the study are available from the corresponding author upon reasonable request.

References

1. Downe S, Finlayson K, Oladapo O, Bonet M, Gülmezoglu AM. What matters to women during childbirth: a systematic qualitative review. PloS one. 2018;13(4):e0194906.
2. Freund A. Expectations and experiences of first-time mothers 2008.
3. Karlström A, Nystedt A, Hildingsson I. The meaning of a very positive birth experience: focus groups discussions with women. BMC Pregnancy and Childbirth. 2015;15(1):251.
4. Dahlberg U, Aune I. The woman's birth experience—The effect of interpersonal relationships and continuity of care. Midwifery. 2013;29(4):407-15.

5. Smarandache A, Kim THM, Bohr Y, Tamim H. Predictors of a negative labour and birth experience based on a national survey of Canadian women. BMC Pregnancy and Childbirth. 2016;16(1):114.
6. Waldenström U, Hildingsson I, Rubertsson C, Rådestad I. A Negative Birth Experience: Prevalence and Risk Factors in a National Sample2004. 17-27 p.
7. WHO. WHO recommendations:: intrapartum care for a positive childbirth experience. Sexual and reproductive health. 2018.
8. McLeish J, Redshaw M. Mothers' accounts of the impact on emotional wellbeing of organised peer support in pregnancy and early parenthood: a qualitative study. BMC Pregnancy and Childbirth. 2017;17(1):28.
9. Matare CR, Mbuya MN, Dickin KL, Constas MA, Pelto G, Chasekwa B, et al. Maternal capabilities are associated with child caregiving behaviors among women in rural Zimbabwe. The Journal of nutrition. 2021;151(3):685-94.
10. Assarian F, Moravveji A, Ghaffarian H, Eslamian R, Atoof F. The association of postpartum maternal mental health with breastfeeding status of mothers: a case-control study. Iranian Red Crescent Medical Journal. 2014;16(3).
11. Surkan PJ, Kennedy CE, Hurley KM, Black MM. Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis. Bulletin of the World Health Organization. 2011;89:607-15.
12. Guittier M-J, Cedraschi C, Jamei N, Boulvain M, Guillemin F. Impact of mode of delivery on the birth experience in first-time mothers: a qualitative study. BMC Pregnancy and Childbirth. 2014;14(1):254.
13. Hosseini Tabaghdehi M, Keramat A, Kolahdozan S, Shahhosseini Z, Moosazadeh M, Motaghi Z. Positive childbirth experience: A qualitative study. Nursing Open. 2020;7(4):1233-8.
14. Namujju J, Muhindo R, Mselle LT, Waiswa P, Nankumbi J, Muwanguzi P. Childbirth experiences and their derived meaning: a qualitative study among postnatal mothers in Mbale regional referral hospital, Uganda. Reprod Health. 2018;15(1):183.
15. Husby AE, van Duinen AJ, Aune I. Caesarean birth experiences. A qualitative study from Sierra Leone. Sexual & Reproductive Healthcare. 2019;21:87-94.
16. Missal B, Clark C, Kovaleva M. Somali Immigrant New Mothers' Childbirth Experiences in Minnesota. Journal of transcultural nursing : official journal of the Transcultural Nursing Society. 2016;27(4):359-67.
17. Mohale H, Sweet L, Graham K. Maternity health care: the experiences of Sub-Saharan African women in Sub-Saharan Africa and Australia. Women and Birth. 2017;30(4):298-307.
18. Nilsson L, Thorsell T, Hertfelt Wahn E, Ekström A. Factors influencing positive birth experiences of first-time mothers. Nursing research and practice. 2013;2013.
19. Shiferaw BB, Modiba LM. Why do women not use skilled birth attendance service? An explorative qualitative study in north West Ethiopia. BMC Pregnancy and Childbirth. 2020;20(1):633.
20. Gurara M, Muyldermans K, Jacquemyn Y, Van geertruyden J-P, Draulans V. Traditional birth attendants' roles and homebirth choices in Ethiopia: A qualitative study. Women and Birth. 2020;33(5):e464-e72.
21. Ababor S, Birhanu Z, Defar A, Amenu K, Dibaba A, Araraso D, et al. Socio-cultural Beliefs and Practices Influencing Institutional Delivery Service Utilization in Three Communities of Ethiopia: A Qualitative Study. Ethiopian journal of health sciences. 2019;29(3).
22. Wassihun B, Zeleke S. Compassionate and respectful maternity care during facility based child birth and women's intent to use maternity service in Bahir Dar, Ethiopia. BMC pregnancy and childbirth. 2018;18(1):1-9.

23. Sheferaw ED, Kim Y-M, Van Den Akker T, Stekelenburg J. Mistreatment of women in public health facilities of Ethiopia. Reprod Health. 2019;16(1):1-10.
24. Fawcett J, Aber C, Haussler S, Weiss M, Myers ST, Hall JL, et al. Women's perceptions of caesarean birth: A Roy international study. Nursing science quarterly. 2011;24(4):352-62.
25. Roy C, Andrews HA. The Roy adaptation model: Appleton & Lange Stamford, CT; 1999.
26. Schacht R. Husserlian and Heideggerian Phenomenology. Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition. 1972;23(5):293-314.
27. HFUSH-HR. Services delivered and human resource in HFUSH. 2019.
28. HFUSH-HMIS. Patient flow of hiwot fana specialized university hospital. 2019.
29. JUGAL-HMIS. Patient flow of the Jugal hospital. 2019.
30. Assefa N, Semahegn A. Fertility is below replacement in Harar Health and Demographic Surveillance System (Harar HDSS), Harar town, Eastern Ethiopia. Fertil Res Pract. 2016;2:10-.
31. Ethiopian Public Health Institute FMoH, Addis Ababa, Ethiopia, and The DHS Program, ICF, Rockville, Maryland, USA. Ethiopia Interim DHS, 2019. Ethiopia: 2019.
32. Van Zyl SF, Burke JL. Increasing the labour epidural rate in a state hospital in South Africa: challenges and opportunities. Southern African Journal of Anaesthesia and Analgesia. 2017;23(6):156-61.
33. Waldum ÅH, Jacobsen AF, Lukasse M, Staff AC, Falk RS, Vangen S, et al. The provision of epidural analgesia during labor according to maternal birthplace: a Norwegian register study. BMC pregnancy and childbirth. 2020;20:1-10.
34. Patton MQ. Qualitative interviewing. Qualitative research and evaluation methods. 2002;3(1):344-7.
35. Suri H. Purposeful sampling in qualitative research synthesis. Qualitative research journal. 2011;11(2):63-75.
36. Guest G, Bunce A, Johnson L. How Many Interviews Are Enough? Field Methods - FIELD METHOD. 2006;18:59-82.
37. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. Qual Quant. 2018;52(4):1893-907.
38. Elo S, Kyngäs H. The qualitative content analysis process. Journal of advanced nursing. 2008;62(1):107-15.
39. Kibiswa NK. Directed qualitative content analysis (DQlCA): A tool for conflict analysis. The Qualitative Report. 2019;24(8):2059-79.
40. Elo S, Kääriäinen M, Kanste O, Pölkki T, Utriainen K, Kyngäs H. Qualitative content analysis: A focus on trustworthiness. SAGE open. 2014;4(1):2158244014522633.
41. Ugwu NU, de Kok B. Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria. Reprod Health. 2015;12(1):70.
42. Ryding EL, Wijma K, Wijma B. Experiences of emergency cesarean section: A phenomenological study of 53 women. Birth. 1998;25(4):246-51.
43. Richard F, Zongo S, Ouattara F. Fear, guilt, and debt: an exploration of women's experience and perception of cesarean birth in Burkina Faso, West Africa. International journal of women's health. 2014;6:469.
44. Ugwu NU, de Kok B. Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria. Reprod Health. 2015;12(1):1-13.
45. Rishworth A, Bisung E, Luginaah I. "It's Like a Disease": Women's perceptions of caesarean sections in Ghana's Upper West Region. Women and birth. 2016;29(6):e119-e25.

46. Wigert H, Nilsson C, Dencker A, Begley C, Jangsten E, Sparud-Lundin C, et al. Women's experiences of fear of childbirth: a metasynthesis of qualitative studies. International journal of qualitative studies on health and well-being. 2020;15(1):1704484.
47. Organization WH. Counselling for maternal and newborn health care: A handbook for building skills: World Health Organization; 2010.
48. Rosen HE, Lynam PF, Carr C, Reis V, Ricca J, Bazant ES, et al. Direct observation of respectful maternity care in five countries: a cross-sectional study of health facilities in East and Southern Africa. BMC pregnancy and childbirth. 2015;15(1):1-11.
49. Kinney MV, Boldosser-Boesch A, McCallon B. Quality, equity, and dignity for women and babies. The Lancet. 2016;388(10056):2066-8.

Table 1. Socio-demographic and obstetric characteristics participating mothers who delivered singleton, term infants

Data are n (%).

Variable		Vaginal delivery (N=18)	Cesarean section (N=20)	Total (N=38)
Age in years	15-24	10(55.5%)	8(40%)	18(47.4%)
	25-34	7(38.9%)	5(25%)	12(31.6%)
	35-46	1(5.6%)	7(35%)	8(21%)
Residency	Urban	10(55.6%)	5(25%)	15(39.5%)
	Rural	8(44.4%)	17(85%)	23(60.5%)
Marital status	Married	18(100%)	20(100%)	38(100%)
Ethnicity	Oromo	13(72.2%)	16(80%)	29(76.3%)
	Amhara	4(22.2%)	3(15%)	7(18.4%)
	Gurage	1(5.5%)	1(5%)	2(5.3%)
Working outside the home	Employed	4(22 %)	7(35%)	11(29%)
	Housewife	14(77.8%)	13(65%)	27(71%)
Religion	Muslim	17(94.4%)	14(70 %)	31(81.6%)
	Orthodox	1(5.6%)	4(20%)	5(13 .2%)
	Protestant	0(0%)	2(10%)	2(5.3%)
Educational level	Non-literate	13(72.2%)	7(35%)	20(52.6%)
	Literate	5(27.8%)	13(65%)	18(47.4%)
Parity	Nonporous	6(33.3%)	5(25%)	11(29%)
	Multiparous	12(66.7%)	15(75%)	27(71%)
History of previous CS	Yes	2(1.1%)	5(25%)	7(18.4%)
	No	16(88.9%)	15(75%)	31(81.6%)
Previous stillbirth	Yes	1(5.6%)	4(20%)	5(13.2%)
	No	17(94.4%)	16(80%)	33(86.8%)
Previous neonatal death	Yes	2(11.1%)	0(0%)	2(5.3%)
	No	16(88.9%)	20(100 %)	36(94.7%)
Having referral	Yes	17(94.4%)	18(90%)	35(92.1%)
	No	1(5.6%)	2(10%)	3(7.9%)

Table 2. Codes and quotes under RAM

RAM=Roy's Adaptation Model. CS= Cesarean section.

RAM	Codes	Example quote
Physiologic mode	Fatigue, Pain Activity intolerance Anesthesia effect Surgical site wound Feeling comfort Ability to control the pain	"..... The feeling in the recovery room after the operation was horrible. I could not turn to the side. I was in severe pain, and to feed the breast for the baby was very difficult." [25-year-old woman]
Self-concept mode	Loss of self-confidence The concern of future pregnancy Lack of privacy New hospital environment Newborn health status Changing the plan in a mode of delivery Perception of childbirth Interaction with health professionals	"...When they told me that I could only be delivered through CS and that this would be my last CS because I had two previous CS. I was saddened, and my blood pressure rose because my husband and his family needed many children, which also encouraged the community and religious leaders..." [34-year-old woman, multiparous mother, CS delivery]
Role function mode	self-care, newborn and family care hospital stay Pain	"... Some women with CS were discharged after three days, but I have been here for five days because I am in treatment. I prefer to return home after delivery, but I had to stay here for five days due to this CS, and I have four children at home who require my attention, and we have spent all of the money we have, so we want to go home." [35-year-old woman, multiparous mother, CS delivery]
Interdependence mode	Interaction with HP The Concern of COVID 19	"...We are at high risk for COVID-19, but hospital administration is reluctant against COVID prevention.

	Family support	The visitors and health providers did not use COVID-19 protection, the hospital must focus on problem prevention. Imagine if a mother is infected, how many people can be affected at once. As you can see, there are more than eight beds in one room and more than three people on each bed so that you can estimate the scope of the problem." [25-year-old woman, first-time mother, vaginal delivery]

806

Declaration of written informed, voluntary consent for an in-depth interview

The interviewer has clearly explained the purpose of the research, procedures, the risks and benefits, confidentiality issues, the rights participating, and the contact address for any queries. She/Heinformed me about the right of asking questions on issues that may not be clear and the right to withdraw from the study at any time, the right not to respond to any question that I do not want. The interviewer also informed me how the research team would maintain the confidentiality of data concerning both information about me and information that I share.I agree with my interview being audio-recorded.Therefore, I declare my willingness to sign consent and participate in this study with my initials as indicated below.

Signature of participant----------date----------/--------/----------

Signature of interviewer----------date----------/----------/--------

Signature of note-taker----------date----------/----------/--------

Interview guide for in-depth interviews with women who gave birth at Jugal and Hiwot Fana Specialized comprehensive Hospitals, Harar,2021.

Socio-demographic and women characteristics		Response
1	Code of Participant	----------
2	Age	----------years
3	**Residency**	Urban
		Rural
4	**Marital status**	Married
		Unmarried
		Diverse
5	**Ethnicity**	Oromo
		Amhara
		Gurage
6	**Working outside the home**	Employed
		Housewife
7	**Religion**	Muslim
		Orthodox
		Protestant
8	**Educational level**	Non-literate
		Literate
9	**Parity**	Nonporous
		Multiparous
10	**History of previous CS**	Yes
		No
11	**Previous stillbirth**	Yes
		No
11	**Previous neonatal death**	Yes
		No
12	**Having referral**	Yes
		No

	Interview Guide		Remark
1	Representations	Before the delivery, how did you imagine this experience?	For primipara women
2	Experience	What can you tell me about your experience? of this first delivery	For primipara women
	Experience	What can you tell me about your experience? of this delivery	For multipara women
	For all women		
3	Physiologic	How did you feel, physically and emotionally, when you found out you were to have our baby by vaginal delivery /CS	
		How did you feel, physically and emotionally, during the actual birth experience?	
4	Self-concept	What happened after the baby was born? How can you express your feeling about the overall birth process?	
5	Role function	How did you feel physically and emotionally during that time? What were your greatest needs during the entire experience?	
6	Interdependence	What could have been done, and by whom, to make this experience better for you?	
		What is your experience related to professional support and Perceived safety?	
		Can you please tell us about your family's support?	
7	Own capacity	How to explain your control during childbirth?	
		How much control did you feel you had during childbirth? (How do felt during labor and birth)	
8	Participation	How was your participation in the care you received	
9	Perceived safety	How secure did you feel during childbirth	
10	Landmark	What were the most important aspects of your delivery experience?	
11	Closing	Is there anything else you would like to add?	

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	7
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	7
Occupation	3	What was their occupation at the time of the study?	7
Gender	4	Was the researcher male or female?	7
Experience and training	5	What experience or training did the researcher have?	7
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	7
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	7
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	7
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	7
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	8
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	7 & 8
Sample size	12	How many participants were in the study?	8 (line 224-28
Non-participation	13	How many people refused to participate or dropped out? Reasons?	8
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	7 &8
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	8
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	8
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	9
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	No
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	9
Field notes	20	Were field notes made during and/or after the inter view or focus group?	9
Duration	21	What was the duration of the inter views or focus group?	9
Data saturation	22	Was data saturation discussed?	8 &9
Transcripts returned	23	Were transcripts returned to participants for comment and/or	No

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	9 (line 247-249)
Description of the coding tree	25	Did authors provide a description of the coding tree?	9
Derivation of themes	26	Were themes identified in advance or derived from the data?	9
Software	27	What software, if applicable, was used to manage the data?	9
Participant checking	28	Did participants provide feedback on the findings?	No
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	11-18
Data and findings consistent	30	Was there consistency between the data presented and the findings?	Yes
Clarity of major themes	31	Were major themes clearly presented in the findings?	Yes
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	No

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.